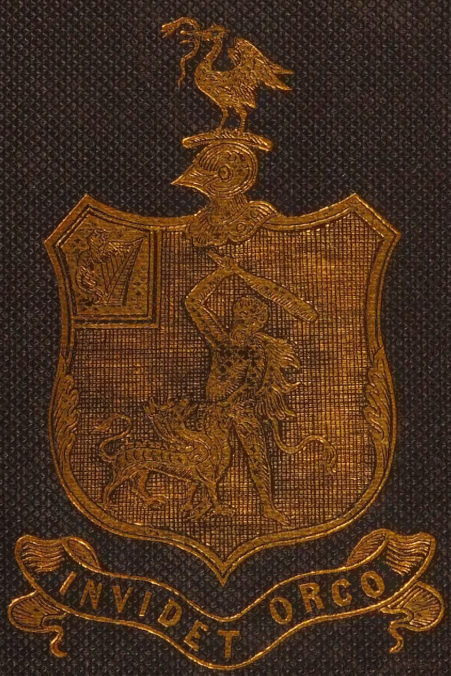
INVIDET ORCO

MESSRS. HODGES AND SMITH

Have published the following Standard Medical Works:

I.

THE DISEASES OF CHILDREN. By Fleetwood

Churchill, M. D., M. R. I. A., &c. 1 vol., fcp., cloth, price 10*s.* 6*d.*

"We can recommend Dr. Churchill's work as a very useful treatise on the Diseases of Children."—Edinburgh Medical Journal.

"The Author has set forth a vast amount of personal experience in the clearest way, and has at the same time furnished his pages so abundantly from all other writers, that his work constitutes a complete bibliography of the Diseases of Children."—Medical Gazette.

"We recommend this work most cordially as a valuable and reliable guide in the treatment of Diseases of Children."—American Journal of the Medical Sciences.

"We regard this volume as possessing more claims to completeness than any other of the kind with which we are acquainted."—Dublin Medical Quarterly.

"We can truly state that this volume will form a most valuable addition to the library of every medical practitioner."—London Journal of Medicine.

"We cannot but admire the unbounded research and labour undergone by Dr. Churchill in composing this work."—Dublin Medical Press.

II.

A TREATISE ON FRACTURES in the Vicinity of

Joints, and on certain Forms of Accidental and Congenital Dislocations. By Robert William Smith, M. D., M. R. I. A., Fellow of the Royal College of Surgeons in Ireland. Illustrated with 200 Engravings on Wood. One vol., 8vo, Boards, 16*s.*

"A volume full of practical and interesting observations."—Sir Benjamin Brodie, M. D.

"This work is a valuable addition to our professional literature, and a perusal of it will repay even veterans in the science. . . . . The Author has proved himself a clever surgeon, and he has written in a style concise and devoid of obscurity."—Medical Times.

"He has brought forward a great deal of valuable surgical information, equally acceptable to the surgeon and the student."—Medical Gazette.

"He has endeavoured to throw light on injuries and affections of an obscure, complicated, or rare character, and has collected many important facts, which he has described and discussed clearly, and without bias."—Medico-Chirurgical Review.

"The reader will gain much additional and valuable information, and a clearer insight into many particulars which are omitted or but lightly passed over in other works. We recommend each person to consult the work, believing it to be a most valuable addition to surgical literature."—Lancet.

"Undoubtedly the most important addition to the literature of Surgical Science with which we have been presented for many years."—Dublin Medical Quarterly.

"The Author's style is graphic and perspicuous, and his description of the appearances resulting from the various injuries, the causes of these appearances, and their value as diagnostics, are so well arranged as to be at once succinct and full, easily understood and remembered."—Edinburgh Medical Journal.

III.

THE SURGICAL ANATOMY OF THE ARTERIES

of the Human Body. By Robert Harrison, M. D., V. P. R. C. S. I., &c. Fourth Edition, 1 vol., 12mo, cloth, 9*s.*

[*Continued on next page.*

IV.

THE DUBLIN DISSECTOR, or System of Practical Anatomy, comprising a concise Description of the Bones, Muscles, Vessels, Nerves, and Viscera; also the Relative Anatomy of the different Regions of the Human Body; for the Use of Students in the Dissecting Room. By Robert Harrison, M. D., V. P. R. C. S. I., M. R. I. A., &c. Fifth Edition, 2 vols., foolscap 8vo, illustrated by 160 Engravings, price 15*s.*

"It is an elegant and valuable work,—the companion equally of the lecture theatre and dissecting room."—Medical Gazette.

"A work highly and justly esteemed for amount of information, clearness of arrangement and language. In its present enlarged and improved state it will supply every instruction that the student can require, and it will be the very best companion he can take with him to the dissecting room."—William Lawrence, Esq., *President of the Royal College of Surgeons, London.*

"The excellence and cheapness of this work cannot but command for it a large sale."—Edinburgh Journal of Medical Science.

"The great number and variety of the subjects elucidated, comprising the most important details in human anatomy, physiology, and pathology, the practical excellence of its arrangement, the accuracy of its descriptions and illustrations, and the clearness and conciseness of its style, place it far above all other competitors in its own peculiar department. It has no rival in any language."—Dublin Quarterly Journal of Medical Science.

"I have always considered the work the best of its kind; and in this new edition its superiority is, I find, much increased."—S. Wharton Jones, Esq., F. R. C. S.

V.

HARDY AND M'CLINTOCK'S MIDWIFERY, and the Diseases incident to the Puerperal State, comprising Notices of 6600 Cases. 1 vol., 8vo, cloth, price 10*s.* 6*d.*

"We discover nothing but the soundest principles of Midwifery, advocated in a luminous and conclusive manner."—British and Foreign Medical Review.

"We recommend it as a valuable addition to our obstetric literature. To all who are engaged in the practice of midwifery it will prove an excellent guide."—Medical Gazette.

"To all who are interested in Obstetric Medicine we highly recommend this work, as a very important record of valuable cases and observations."—Edinburgh Monthly Medical Journal.

"Upon all the leading subjects connected with the practice of Obstetrics, it presents a series of observations particularly interesting, because derived from direct clinical sources."—American Journal of Medical Science.

"It is replete with information, is well written, and gives evident proofs of great experience and close observation."—Medical Times.

"It is long since we examined a work so replete with valuable and practical information. Every page may be consulted with advantage."—Obstetric Record.

VI.

THE DIAGNOSIS AND TREATMENT OF ERUPTIVE DISEASES OF THE SCALP. By J. Moore Neligan, M. D., M. R. I. A., Author of a Treatise on "Medicines: their Uses and Modes of Administration," &c. &c. 1 vol., 12mo, price 2*s.* 6*d.*

"This will be found a useful little guide to those who are called upon to treat these troublesome diseases."—Medical Gazette.

VII.

A SYSTEM OF OPERATIVE SURGERY, containing a Description of the most approved Plans of performing the different Operations in Surgery on the Dead Body; with Remarks on their Anatomy, and accompanied with Practical Observations: being principally designed for the Use of Students in Surgery. By William Hargrave, Member and Professor of the Royal College of Surgeons in Ireland. 1 vol., 12mo, boards, 9*s.*

THE

PHARMACOPŒIA

OF THE

KING AND QUEEN'S

COLLEGE OF PHYSICIANS

IN

IRELAND.

M.D.CCC.L.

DUBLIN:
HODGES AND SMITH, GRAFTON-STREET,
BOOKSELLERS TO THE UNIVERSITY.
1850.

Published by Authority of the College,

JULY 5TH, 1850.

WILLIAM STOKES, PRESIDENT.
CATHCART LEES, VICE-PRESIDENT AND CENSOR.
THOMAS BRADY,
HENRY L. DWYER, } CENSORS.
WILLIAM BARKER,

DUBLIN : Printed at the University Press, by M. H. GILL.

DEDICATED

TO HER MOST GRACIOUS MAJESTY

THE QUEEN,

BY HER MAJESTY'S

FAITHFUL SUBJECTS AND SERVANTS,

THE PRESIDENT AND FELLOWS

OF THE

KING AND QUEEN'S COLLEGE OF PHYSICIANS

IN IRELAND.

By the Lord Lieutenant and Council of Ireland.

CLARENDON.

WHEREAS by an Act passed in the first year of the reign of his late Majesty King George the Third, entitled, "An Act for preventing Frauds and Abuses in the vending, preparing, and administering Drugs and Medicines," it is, amongst other things, enacted, that it shall be lawful for the President, Censors, and Fellows of the College of Physicians in Ireland, for the time being, to frame and publish a Code or Pharmacopœia containing a catalogue of such Drugs or simple Medicines as they shall judge necessary for the prescriptions or uses of Physicians and Chirurgeons, with the forms and rules for preparing and compounding the same, as they shall deem fit and necessary; and that such Code or Pharmacopœia shall be followed and observed by all Apothecaries, Chemists, Druggists, and other persons, who shall prepare, administer, sell, expose, or keep to sale, any Drug, Compound Medicine, or Chemical Preparation whatsoever throughout the kingdom. And it is by said Act further enacted, "that if any Apothecary,

Chemist, or Druggist, or other person or persons, shall make, prepare, compound, sell, expose to sale, or keep any Drug or Medical Preparation whatsoever, or make up any extemporaneous Prescription of any Physician or Chirurgeon, by any other form or rule, in any other utensils, or by any other weights than shall be so directed and appointed by the said College of Physicians, such offender shall forfeit and pay for every such offence the sum of Ten Pounds sterling, unless where the contrary shall be directed by some regular Practitioner, and that for his own private use solely."

AND WHEREAS by an order of the Lord Lieutenant and Council of Ireland, bearing date the 29th day of April, 1826, it was required, charged, and commanded, that all Apothecaries, and others whose duty it was to compound Medicines, or distil Oils or Waters, so soon as a revised and corrected Book, which was then about to be published by the President and Fellows of the King and Queen's College of Physicians in Ireland, entitled "Pharmacopœia Collegii Medicorum Regis et Reginæ in Hibernia," should be printed and published, that they should not compound or make any medicine, or medical receipt or prescription, in any other form than should be

directed and set down in said Book, and which said revised edition of said Book was published by said President and Fellows in said year 1826.

AND WHEREAS there was this day read at the Board the Memorial of William Stokes, Doctor of Medicine, and President of the said King and Queen's College of Physicians in Ireland, setting forth that the President and Fellows of said College had, with great care, pains, and industry, revised and corrected the Book so by them published in the year 1826, entitled "Pharmacopœia Collegii Medicorum Regis et Reginæ in Hibernia," which prescribed and directed the manner of preparing all sorts of Medicines therein contained, together with the true weights and measures by which said Medicines ought to be made, and that said revised and corrected Book was perfected, and ready to be published under the title of "The Pharmacopœia of the King and Queen's College of Physicians in Ireland," and that it was conceived that said Book would contribute to the public good of Her Majesty's subjects, by preventing all deceits, differences, and uncertainties in the making or compounding of Medicines, if for the future the manner and form prescribed therein should be practised by Apothecaries and others in

their composition of Medicines; and the Memorialist humbly prayed that WE would be pleased to enforce the observance thereof in such manner as to US should seem meet.

NOW WE, THE LORD LIEUTENANT OF IRELAND, having taken the said Memorial into OUR consideration, and being desirous in all cases to provide for the common good of Her Majesty's people, and being persuaded that the establishing the general use of the said Book may tend to the prevention of such deceits in the making and compounding Medicines in which the lives and health of Her Majesty's subjects are so highly concerned, have therefore thought fit, by and with the advice of Her Majesty's Most Honourable Privy Council of Ireland, hereby to notify to all Apothecaries and others concerned, to the intent that they may not pretend ignorance thereof, that the said Book called "The Pharmacopœia of the King and Queen's College of Physicians in Ireland," revised and corrected as aforesaid, is perfected and ready to be published.

AND WE do therefore strictly require, charge, and command all and singular Apothecaries and others whose business it is to compound Medicines, or distil Oils or Waters, or make other extracts,

within this part of Her Majesty's United Kingdom called Ireland, that they and every of them, immediately after the said "Pharmacopœia of the King and Queen's College of Physicians in Ireland" shall be printed and published, do not compound or make any Medicine, or medicinal receipt or prescription, or distil any Oil or Waters, or make other extracts that are or shall be in the said "Pharmacopœia of the King and Queen's College of Physicians in Ireland" mentioned or named, in any other manner or form than is or shall be directed, prescribed, and set down in the said Book, and according to the weights and measures that are or shall be therein limited, except it shall be by the special direction or prescription of some learned Physician in that behalf.

AND WE do hereby declare our determination, that all persons violating the provisions of the said Act of Parliament shall be proceeded against for such their contempt and offence according to the utmost severity of the Law.

Given at the Council Chamber in Dublin, this 22nd day of August, 1850.

By His Excellency's Command,

M. W. SAVAGE,

Clerk of the Council.

THE

KING AND QUEEN'S

COLLEGE OF PHYSICIANS

IN IRELAND.

FELLOWS, HONORARY FELLOWS, AND LICENTIATES,

JUNE 1ST, 1850,

WITH THE DATES OF THEIR ELECTIONS.

PRESIDENT.

WILLIAM STOKES.

CENSORS.

CATHCART LEES, VICE-PRES. | HENRY LAW DWYER.
THOMAS BRADY. | WILLIAM BARKER.

TREASURER.

JOHN MOLLAN.

REGISTRAR.

JONATHAN LABATT.

LIBRARIAN.

GEORGE ALEXANDER KENNEDY.

FELLOWS.

	LICENSE.	FELLOWSHIP.
ADAMS, WILLIAM O'BRIEN, . . .	Oct. 11, 1828.	Apr. 16, 1832.
APJOHN, JAMES, ...	Sept. 7, 1829.	Oct. 18, 1831.
BARKER, WILLIAM, ...	July 20, 1840.	Apr. 14, 1845.
BEATTY, WILLIAM CROFTON, . . .	Aug. 26, 1826.	June 8, 1829.
BELL, ROBERT, *Clerk*, ...	Feb. 5, 1820.	Oct. 18, 1824.
BRADY, THOMAS, ...	Nov. 17, 1829.	May 21, 1832.
BRERETON, DAVID, ...	Aug. 12, 1826.	Oct. 27, 1828.

	License.	Fellowship.
Clinton, Patrick,	Dec. 2, 1826.	Oct. 19, 1829.
Collins, Robert,	June 2, 1824.	Oct. 28, 1839.
Connor, Shewbridge,	Sept. 23, 1826.	June 7, 1830.
Croker, Charles Philip,	July 1, 1826.	Oct. 27, 1828.
Duncan, James Foulis,	Nov. 27, 1837.	April 12, 1841.
Dwyer, Henry Law,	Oct. 28, 1839.	May 19, 1845.
Eustace, John,	June 20, 1825.	Jan. 7, 1839.
Grattan, Richard,	Sept. 17, 1814.	Apr. 14, 1817.
Graves, Robert James,	Nov. 27, 1820.	Apr. 7, 1823.
Hanna, Samuel,	Feb. 21, 1833.	May 25, 1835.
Henry, James,	Oct. 4, 1823.	Oct. 30, 1826.
Herdman, Robert,	Sept. 28, 1839.	Oct. 31, 1842.
Hudson, Henry,	Feb. 14, 1820.	Oct. 26, 1840.
Joy, William Bruce,	Oct. 13, 1828.	Apr. 16, 1832.
Kane, Sir Robert John,	May 6, 1835.	Oct. 30, 1843.
Kennedy, Evory,	Sept. 18, 1828.	Oct. 28, 1839.
Kennedy, Henry,	Feb. 3. 1845.	May 21, 1849.
Labatt, Jonathan,	July 2, 1831.	Oct. 28, 1833.
Lees, Cathcart,	Jan. 22, 1842.	Oct. 27, 1845.
M'Cready, John Davidson,	Aug. 14, 1826.	June 8, 1829.
Marsh, Sir Henry, Bart.,	Aug. 31, 1818.	Oct. 28, 1839.
Mollan, John,	July 5, 1819.	Oct. 28, 1839.
Montgomery, Wm. Fetherston,	Nov. 26, 1825.	June 8, 1829.
Morgan, William Isaac,	Aug. 5, 1822.	Jan. 15, 1827.
Reid, Robert,	July 13, 1811.	Oct. 28, 1839.
Ringland, John,	June 12, 1841.	May 20, 1850.
Smith, Aquilla,	July 24, 1833.	Oct. 28, 1839.
Spillan, Daniel,	April 30, 1828.	June 7, 1830.
Steele, William Edward,	July 8, 1840.	May 22, 1848.
Stokes, William,	Dec. 3, 1825.	Oct. 28, 1839.
Travers, Robert,	Sept. 8, 1841.	Oct. 29, 1849.

HONORARY FELLOWS.

	License.	Fellowship.	Hon. Fellowship.
Adams, Neason,	July 9, 1821.		Jan. 10, 1848.
Alison, Wm. Pulteny,			Apr. 11, 1836.
Banks, John Thomas,	Sept. 15, 1841.	Oct. 28, 1844.	April 8, 1850.
Barker, Francis,	Jan. 21, 1805.	April 6, 1807.	June 14, 1813.
Breen, John,	Nov. 16, 1812.		Nov. 2, 1829.
Churchill, Fleetwood,	Feb. 15, 1832.		Jan. 10, 1848.

	License.	Fellowship.	Hon. Fellowship.
Clarke, Sir James, Bart.,			Aug. 2, 1849.
Cuming, Thomas,	June 12, 1820.		Jan. 10, 1848.
Douglas, John Cuppage,	Nov. 12, 1810.		Oct. 29, 1832.
Farran, Charles,	Nov. 24, 1821.	Oct. 18, 1824.	Oct. 31, 1842.
Ferguson, John Creery,	June 9, 1827.	Nov. 2, 1829.	Oct. 26, 1846.
Harty, William,	Apr. 27, 1818.	Oct. 18, 1824.	Oct. 28, 1833.
Johnson, Charles,	June 20, 1829.		Oct. 18, 1841.
Kennedy, Geo. Alex.,	Nov. 24, 1824.	Jan. 15, 1827.	Apr. 13, 1846.
Law, Robert,	Jan. 27, 1827.	Oct. 19, 1829.	Nov. 1, 1841.
M'Keever, Thomas,	Dec. 16, 1826.		Jan. 10, 1848.
Osborne, Jonathan,	May 3, 1819.	May 19, 1823.	Oct. 26, 1840.
Roget, Peter Mark,			Jan. 4, 1836.
Toleken, John,			Apr. 8, 1850.

LICENTIATES.

	License.
Allman, William, *Clerk*,	June 19, 1841.
Armstrong, Andrew,	June 13, 1808.
Beauchamp, Henry Coulson,	July 9, 1831.
Blennerhasset, Henry,	Feb. 6, 1809.
Burke, William Malachi,	June 19, 1847.
Carlile, Hugh,	Sept. 5, 1840.
Colvan, John,	Oct. 12, 1829.
Cryan, Robert,	Mar. 12, 1849.
Cuthbert, William Hamilton,	Jan. 17, 1842.
Daly, Mark Weatherby,	May 6, 1822.
De'Styrap, Jukes,	Mar. 9, 1850.
Douglas, Henry Grattan,	Dec. 22, 1819.
Doxey, Thomas,	Nov. 17, 1828.
Dwyer, Francis Doyne,	Oct. 8, 1831.
Evans, John Tyrrell,	May 30, 1842.
Fawcett, George,	Oct. 26, 1846.
Fitzpatrick, Thomas,	Aug. 22, 1840.
Forde, Henry,	July 15, 1841.
Frazer, William,	Aug. 14, 1848.
Frizell, Charles,	July 19, 1816.
Fry, Alexander,	Aug. 9, 1845.
Gason, John,	Feb. 26, 1844.
Halpin, Charles,	Jan. 21, 1843.
Harkan, Patrick,	Nov. 27, 1811.

	License.
Hopper, Ralph William Shepperdson,	June 21, 1839.
Hoskyns, John,	Feb. 15, 1832.
Hughes, John,	June 12, 1845.
Ireland, Richard Stanley,	Oct. 10, 1818.
Joly, Henry Edward, *Clerk*,	Dec. 6, 1813.
Lloyd, Robert,	Mar. 12, 1813.
M'Adam, David Hastings,	July 14, 1827.
M'Donnell, Robert L.,	Apr. 29, 1844.
M'Kee, James,	July 3, 1848.
Malcolmson, William,	June 14, 1849.
Maxwell, John Nesbitt,	Nov. 14, 1831.
Mitchell, Arthur,	Nov. 6, 1844.
Molloy, Thomas M.,	July 21, 1827.
Moses, Joseph William,	Mar. 7, 1850.
Moss, William,	June 22, 1844.
Murney, Robert,	Aug. 7, 1848.
Nash, Thomas,	Sept. 13, 1849.
Neligan, John Moore,	Jan. 22, 1846.
O'Reardon, John,	June 11, 1812.
O'Reilly, Charles,	May 6, 1829.
O'Ryan, Stephen,	June 23, 1845.
Paterson, Henry,	Sept. 30, 1841.
Peard, William,	Feb. 7, 1850.
Pickford, James Hollins,	Oct. 31, 1842.
Robinson, Joseph,	Oct. 29, 1849.
Shaw, William,	Mar. 12, 1850.
Smyth, John,	May 22, 1837.
Thwaites, John,	Aug. 31, 1829.
Tice, John Charles Graham,	Sept. 21, 1844.
Trenor, William Adams,	June 16, 1838.
Turner, George,	Nov. 16, 1836.
Tweedy, Henry,	Nov. 14, 1840.
Tyler, Alexander,	Oct. 8, 1842.
Tyrrell, George,	Nov. 13, 1828.
Verner, Edward,	Jan. 24, 1827.
Walker, Hugh Eccles,	Aug. 1, 1838.
Young, Edward,	Apr. 22, 1844.
Young, Epaphroditus,	Oct. 3, 1842.

PREFACE.

FOUR and twenty years having elapsed since the

ERRATUM.

Page 167, line 11, *for* muriate *read* valerianate.

as would seem called for by the rapid progress made, in modern times, by those sciences from which our knowledge of therapeutics is chiefly derived. These researches have not only occupied much time, but have been conducted with the attention and care necessary to insure accurate results. The formulæ, therefore, to which they have led, are given with considerable confidence, and though, in the progress of discovery, some of them will, no doubt, be replaced by others of a superior description, they

are, at all events, such as may be successfully repeated by any person who attends strictly to the directions given in them. They will also, it is believed, be found to be recommended generally by their economy, simplicity, and the comparative purity of the products which they yield. The question of economy, however, the College considers as one of a very subordinate nature, and not at all to be entertained should the purity of a medicinal agent be endangered by a diminution in the cost of its production.

And here it will be proper to observe, that formulæ are given for the preparation of numerous medicines which are, at present, seldom made by the apothecary, being fabricated on the great scale by the manufacturing chemist. This is the course adopted by the College in the Pharmacopœia of 1826, and it is one which should not be lightly abandoned; for he who occasionally manufactures his own chemicals, will obviously be the best judge of the quality of those which he purchases, and will be possessed of standards of comparison by which the numerous frauds and adulterations, at present practised, will be most readily and certainly detected. There are, however, certain articles, such, for example, as citric and tartaric acids, which, while they may be always had of sufficient purity in the market, scarcely admit of being satisfactorily made on the small scale; and others which, though easily made,

may, like Epsom salt, be always purchased of excellent quality. For the preparation of such, no processes have been given.

The principal differences between the present Pharmacopœia and its predecessor may now be briefly noticed. And first, as respects classification.

In the present work the various formulæ are grouped under thirty-seven headings or sections, distinguished by distinct names, and these are placed consecutively in alphabetic order, this being obviously the method of arrangement which best secures facility of reference. Several of the headings are the same as in the Pharmacopœia of 1826, but there are also some important changes, the principal of which is the suppression of the *Metallica* of the last edition, and the distribution of the numerous preparations of this class under sections headed respectively, *Acetates*, *Arsenites*, *Carbonates*, *Chlorides*, *Citrates*, *Iodides*, *Metals*, *Nitrates*, *Oxides*, *Phosphates*, *Sulphates*, *Sulphurets*, *Tartrates*, and *Valerianates*. According to the old arrangement, the *Sulphurea* appeared as a distinct section, and while some oxides were included amongst the *Metallica*, others, as the alkalies and earths, were not. Such incongruities are avoided by the method of subdivision of the metallic preparations now adopted; and this method has the additional recommendation of being made to rest upon the electro-negative, rather than the electro-positive constituent, and thus coming, in its princi-

ple, to coincide with the most approved classifications of the objects of the mineral kingdom. In a single instance, however, it has been found expedient to deviate slightly from the arrangement which has been sketched, and, as it became necessary to erect the alkaloids into a distinct section, seeing that they are not metallic oxides, it was thought better to arrange with each alkaloid its saline compounds, rather than transfer such to the sections characterized by their respective acid or electro-negative constituents. Strict adherence also to alphabetic order would cause the *essences* to be separated from the *spirits*, and such course would probably have been taken, had the introduction of the former been decided upon sufficiently soon to enable them to be put in their proper place.

The medicinal agents, for the preparation of which formulæ appear for the first time in the present edition, amount to a considerable number, and yet there are many of undoubted efficacy which the list does not comprehend. From a field so vast, a selection had to be made, and such were preferred whose therapeutic virtues had been most satisfactorily established, and which could be obtained by processes the merit of which had been tested by actual experiment.

It is scarcely necessary to say, that many processes still retained have been materially modified, and that others have been altogether omitted; the latter

course, however, being adopted only when the products of the processes were, as is the case with several of the extracts, of a perishable nature, had become obsolete in medical practice, or possessed but questionable utility. In one instance, too, a class of medicines, the distilled spirits, has, with a few exceptions, been suppressed, while their place has been supplied by the *essences;* preparations which, while they exert an equivalent action to that of the *spirits*, are necessarily of definite strength, much more easily made, and better suited to medicinal use.

And here it is proper to observe, that a leading object held in view by the College has been the simplifying, as far as was practicable, of the Pharmacopœia, in order that the apothecary may be induced to undertake the preparation of his own medicines, and thus become as independent as possible of the manufacturing chemist. For reasons already glanced at, this is considered an important object, and it is believed to be one which will be promoted by the very simple and ready methods given in this work of obtaining the essences, aromatic waters, aromatic spirit of ammonia and other preparations. The formulæ for ointments, for example previously sufficiently complex, are now rendered not only easy of execution, but of being retained in the memory, by making the *Unguentum Albæ Ceræ* the basis of most of them ; while the directions for the preparation of infusions and decoctions are made

nearly the same in every case, all the former, save one, being completed within an hour, and all the latter, but three, within ten minutes.

In the carrying out of the important object of simplifying the formulæ for the preparation of medicines, the convenience of the prescriber has also been consulted, in illustration of which it will be sufficient to state that all the liquid preparations of opium have now under a given volume the same strength, and that the mineral acids have been diluted on the same principle, or so that an equal measure of each shall contain the same *equivalent* quantity of each absolute acid. These alterations, though sufficiently simple, are, it is considered, not unimportant, as they must tend to reduce the labour of the medical student, and diminish the number of erroneous prescriptions.

In the difficult department of nomenclature little change has been attempted. The terms conserves, electuaries, and confections, if ever employed in senses perfectly distinct, are certainly not so used at present, and hence it has been thought proper to diminish their number, by using one as a substitute for all, and the term *confection* is that which has been adopted. For the definite chemical compounds, names long in use, though, according to present views, not strictly applicable, are still retained ; but in the case of such as appear in the Pharmacopœia for the first time, to those the terms are applied by which they

are designated in the most recent chemical treatises. Peculiar difficulties, however, sometimes present themselves, where, for example, the chemical composition is doubtful, or so complex as not to admit of a brief and expressive name, or where the order of the compound is uncertain, in consequence of the different views taken by chemists of the atomic weight of one of its constituents. The two first sources of embarrassment exist in the case of the bleaching chloridic compounds; but these have been evaded by the use of the very convenient and appropriate adjective, *chlorinata*, first found in the London Pharmacopœia of 1836. Of the remaining difficulty we have a striking instance in the mercurial preparations; the term chloride of mercury, long applied to calomel, becoming that for corrosive sublimate when the atomic weight of the metal is changed, as it has been recently, from 200 to 100. To obviate the confusion which must inevitably follow from this change, *chemical* nomenclature has, in the case of the preparations of mercury, been altogether abandoned, and such names as calomel and corrosive sublimate employed, or others, such as *red* oxide, *red* or *green* iodide, which are derived merely from the colour of the compound.

In relation to the weights and measures, a great innovation has been made, which, however, the College feels confident will receive the sanction of the public and the profession. The old wine gallon of

231 cubic inches, which has become nearly obsolete, has been replaced by the imperial gallon, and the subdivisions of it first made in the London, and subsequently adopted in the Edinburgh Pharmacopœia. In the formularies, however, just named, the Troy pound, with its well-known submultiples has been retained, whereas it is now rejected by the Irish College, and its place supplied by the avoirdupois pound, the avoirdupois ounce being, like the Troy ounce, subdivided into eight drachms, and each of these, like the Troy drachm, into three scruples. There are many reasons justifying such a change, but it will be sufficient to glance at a few of the more important of them. At present the two systems are in use with the apothecary, for his purchases are made in avoirdupois, and his sales generally, though not always, in Troy weight. A practice so inconvenient and arbitrary surely requires to be reformed. The manufacturing chemist, too, by whom the avoirdupois pound and its subdivisions alone are used, is compelled, in preparing any medicine according to the directions of the Pharmacopœia, to have recourse, as a preliminary, to tedious arithmetical reductions; so that unnecessary labour is thus created, and the chances of error greatly augmented. Besides, between the imperial measures and Troy weights there is no simple relation which would abridge calculation, and enable us to determine with facility the proportions by weight which the liquid mate-

rials of a process, when given in measures, bear to the solid, or *vice versâ*. In fact, as respects the important point just adverted to, nothing would appear to have been accomplished by substituting the imperial for the wine gallon. It is otherwise, however, when with the imperial gallon and its divisions we combine the avoirdupois system of weights adopted in the present work; for as the fluid ounce and ounce by weight are both similarly subdivided, and that the avoirdupois ounce of 437·5 grains is the weight of a fluid ounce of water, and the avoirdupois drachm of 54·68 grains is the weight of the fluid drachm of water, when we have the volume of any liquid in imperial ounces or drachms, its weight is obtained by simply multiplying this by its specific gravity. Thus the weight of 11·5 fluid ounces of proof spirit is $11{\cdot}5 \times {\cdot}92 = 10{\cdot}58$ ounces; and 7·75 drachms by measure of *pure sulphuric acid* weigh $7{\cdot}75 \times 1{\cdot}846 = 14{\cdot}3$ drachms. The weights of liquids may obviously be converted with equal simplicity into measures, viz., by dividing instead of multiplying by the specific gravity.

To the substitution of the avoirdupois system, as here explained, for the old established Troy weights, objections may of course be made ; but, having maturely considered most of these, the College cannot attach to them much weight. It cannot, for example, consider it a matter of any practical importance that the new drachm and scruple are not multiples of a

grain by integer numbers; nor that those practitioners who do not take the trouble of consulting this work, should, in ordering a drachm or scruple of some active medicine, be administering a little less of it than they intended. A more plausible objection, which will, no doubt, be urged, is that the avoirdupois ounce has been already resolved into sixteen parts called *drachms*, and that there is, therefore, danger of this drachm being confounded with that of the Pharmacopœia, although having but half its value. The drachm, however, whose value is the sixteenth of an ounce, has nearly gone out of use, and even though it were common, it would, it is considered, be very unlikely to be mistaken for a weight between which and it there is so great a difference. The fact of there being an existing avoirdupois drachm different from that which it is proposed to institute, is certainly an inconvenience. It is also one which does not admit of being removed, for the subdivision of the ounce into eight parts was indispensable, in order that the drachm should retain nearly its original pharmaceutical value, and that drachm measures should be convertible into weights by multiplying by the specific gravity. The chance of error, however, from this source, has been materially diminished by Mr. Donovan of this city, who has undertaken to supply at a moderate cost, and without the slightest view to personal profit, the weights adopted in the present work. Mr. Donovan is na-

turally anxious for the success of a system which he was the first to propose (see his review of the Dublin Pharmacopœia of 1826, published in the second volume of the Dublin Philosophical Journal), and in his efforts to introduce into pharmacy more simple and philosophical measures of capacity and weight than those previously in use, he has given evidence of the zeal with which he still applies himself to the improvement of that department of Practical Chemistry to which he has been so long and successfully devoted.

It is proper too, in conclusion, to add, that all inquiries addressed by the individual to whom the preparation of this volume has been intrusted, to the practical Pharmaceutists of this city, have been answered with promptness, and that an anxious desire has been evinced by them to render their experience available for the benefit of this work.

CONTENTS.

MATERIA MEDICA.

The following list of the Materia Medica comprises every article of which mention is made in the formulæ of the Pharmacopœia, together with a few drugs and chemicals, which, though frequently used as therapeutic agents, are not required for the preparation of the medicines ordered by the College.

The names of medicinal plants generally adopted are those given by Dr. Lindley in his "Medical and Œconomical Botany, 8vo. *Lond.* 1849," the most recent British work on this subject. In every instance the name of the authority is subjoined (within brackets) to that of the plant. The numerous references to Linnæus's "Species Plantarum," are indicated by the letter *L.*, and the letter *W.* has reference to the second edition of the Species Plantarum by Willdenow.

Abies excelsa. (*Lindley.*) Common Spruce. *Burgundy pitch.*

Acacia catechu. (*W.*) Catechu Tree. *Extract obtained from the wood.*

The leaves of *Uncaria gambier* (*Roxburgh Fl. Indica*), furnish the variety of Catechu known in commerce as *Terra japonica.*

ACACIA VERA. (*W.*) Gum Arabic Tree. *The Gum.*
The true white Gum Arabic is yielded by *Acacia varek* (*Guillemin*). Other species contribute to furnish the Gum Arabic of commerce.

ACETUM GALLICUM. French Vinegar.

ACIDUM ACETICUM E LIGNO VENALE. Acetic Acid of commerce; Purified Pyroligneous Acid. Sp. gr. 1044.

ACIDUM ARSENIOSUM VENALE. *See* ARSENICI OXYDUM.

ACIDUM CITRICUM. Citric Acid.

ACIDUM MURIATICUM VENALE. Commercial Muriatic Acid.

ACIDUM NITRICUM VENALE. Commercial Nitric Acid.

ACIDUM SULPHURICUM VENALE. Commercial Sulphuric Acid; Oil of Vitriol.

ACIDUM TARTARICUM. Tartaric Acid.

ACONITUM NAPELLUS. (*L.*) Monk's-hood. *The root.*

ADEPS SUILLUS. Hog's lard; the fat of *Sus scrofa.* (*L.*)

ÆRUGO. Verdigris. *See* CUPRI SUBACETAS.

AGATHOTES CHIRAYITA. (*Don.*) Chiretta Plant. *The herb.*

ALÖE HEPATICA. Hepatic Aloes. *Extract or inspissated juice.*
This is obtained from the leaves of one or more undetermined species of aloe.

ALUMEN. Alum; Sulphate of Alumina and Potash.

AMMONIACUM. Ammoniac. *See* DOREMA.

AMMONIÆ CARBONAS. *See* AMMONIÆ SESQUICARBONAS.

AMMONIÆ MURIAS. Muriate of Ammonia; Sal Ammoniac.

Ammoniæ sesquicarbonas. Sesquicarbonate of Ammonia.

Amygdalus communis. Variety dulcis. (*L.*) Sweet Almond Tree. *The kernels of the fruit.*

Amylum. Starch. *See* Triticum.

Anisum. Anise. *See* Pimpinella.

Anthemis nobilis. (*L.*) Chamomile. *The flowers.*

Antimonii sulphuretum. Sulphuret of Antimony.

Aqua fontana. Spring Water.

Arctostaphylos uva ursi. (*Sprengel.*) Bear-berry. *The leaves.*

Argentum purificatum. Refined Silver.

Aristolochia serpentaria. (*L.*) Virginia Snakeroot. *The root.*

Arsenici oxydum album venale. White oxide of Arsenic of Commerce.

Artanthe elongata. (*Miquel.*) Matico plant. *The leaves.*

Assafœtida. *See* Narthex.

Astragalus gummifer. (*Labillardière.*) White Tragacanth Tree. *The gummy exudation.*

Atropa Belladonna. (*L.*) Deadly Nightshade. *The leaves and root.*

Avena sativa. (*L.*) Common Oat. *The seeds.*

Axungia. Axunge. *See* Adeps.

Balsamodendron myrrha. (*Nees Von Esenbeck.*) Myrrh Tree. *The Gum-resinous exudation.*

Balsamum tolutanum. Tolu Balsam. *See* Myrospermum.

Barosma crenata. (*W.*) Buchu. *The leaves.*

Barytæ carbonas. Carbonate of Barytes; Witherite.

Barytæ sulphas. Sulphate of Barytes; Heavy Spar.

Belladonna. *See* Atropa.

Benzöinum. Benzoin. *See* Styrax.

Bismuthum. Bismuth.

Borax. *See* Sodæ biboras.

Buchu. *See* Barosma.

Cajeputum. *See* Melaleuca.

Calcis carbonas. Carbonate of Lime; Chalk and White Marble.

Calumba. *See* Cocculus.

Calx chlorinata. Chlorinated Lime; Bleaching Salt of Lime.

Calx recens usta. Fresh-burned Lime; Quicklime.

Cambogia. Gamboge. *See* Hebradendron.

Camphora officinarum. (*Nees von Esenbeck.*) Camphor Tree. *Camphor.*

Canella alba. (*Swartz.*) Canella; Wild Cinnamon. *The bark.*

Canna edulis. (*Ker.*) The Root is supposed to furnish the fecula called *Tous le mois.*

Cannabis indica. Indian Hemp. *The extract.*

Cantharis vesicatoria. (*Latreille.*) Cantharides; Spanish Flies.

Capsicum annuum. (*L.*) Cayenne Pepper. *The fruit.*

Carbo animalis. Animal Charcoal; Ivory-black.

Carbo ligni. Wood Charcoal.

Cardamomum. Cardamom. *See* Elettaria.

Carum carui. (*L.*) Caraway. *The seeds.*

Caryophyllus aromaticus. (*L.*) Clove Tree. *The dried undeveloped flowers.*

Cascarilla. *See* Croton eleuteria.

Cassia acutifolia. (*Delile.*) Alexandrian Senna. *The leaves.*

Cassia elongata. (*Lemaire-Lisancourt.*) Tinnivelly Senna. *The leaves.*

Castoreum. Castor. A peculiar secretion from the follicles of the prepuce of *Castor fiber.* (*L.*)

Catechu. *See* Acacia catechu.

Cephaëlis Ipecacuanha. (*A. Richard.*) True Ipecacuanha. *The root.*

Cera alba. White Wax; Bleached Bees'-wax.

Cera flava. Yellow Wax; Unbleached Bees-wax. A secretion of the *Apis Mellifica* (*L.*), or Honey Bee.

Cerasus laurocerasus. (*Loiseleur.*) Common Laurel. *The leaves.*

Cerevisiæ fermentum. Yeast.

Cetaceum. Spermaceti. A peculiar concrete substance, obtained chiefly from the head of the *Physeter macrocephalus.* (*L.*)

Cetraria islandica. (*Acharius.*) Iceland Moss.

Chamæmelum. Chamomile. *See* Anthemis.

Daucus carota. (*L.*) Common Carrot. *The root.*

Digitalis purpurea. (*L.*) Foxglove. *The leaves.*

Diosma. *See* Barosma.

Dolichos. *See* Mucuna.

Dorema ammoniacum. (*D. Don.*) Gum Ammoniac Plant. *The gum-resinous exudation.*

Dulcamara. Bittersweet. *See* Solanum.

Ecbalium agreste. (*Richard.*) Spirting Cucumber. *Elaterium; the feculence from the juice of the fruit.*

Elaterium. *See* Ecbalium.

Elemi. The concrete resinous exudation from one or more unascertained plants.

Elettaria cardamomum. (*Maton.*) Cardamom. *The seeds.*

Ergota. *See* Secale.

Eugenia pimenta. (*De Candolle.*) Allspice. *The unripe berries.*

Exogonium purga. (*Bentham.*) True Jalap Plant. *The root.*

Farina. Flour. *See* Triticum.

Ferrum. *Rod Iron; Iron Wire; Turnings and Filings.*

Ficus carica. (*L.*) Common Fig Tree. *The dried fruit.*

Fœniculum officinale. (*Allioni.*) Fennel. *The seeds.*

Fraxinus ornus. (*L.*) Flowering Ash.
An exudation from this and other species, constitutes the *Manna* of commerce.

Galbanum. *See* Opoidia.

Gallæ. Nutgalls. *See* Quercus infectoria.

Gentiana lutea. (*L.*) Yellow Gentian. *The root.*

Glycerina. Glycerine. A sweet principle produced during saponification. Sp. gr. 1260.

Glycyrrhiza glabra. (*L.*) Liquorice. *The root.*

Guaiacum officinale. (*L.*) Lignum Vitæ. *The wood and resin.*

Hæmatoxylon campeachianum. (*L.*) Logwood tree. *The wood.*

Hebradendron gambogioides. (*Graham.*) Ceylon Gamboge Tree. *The gum-resinous exudation; Gamboge.*

Hemidesmus indicus. (*R. Browne.*) Indian Sarsaparilla. *The root.*

Hirudo medicinalis. (*L.*) The Leech.

Hordeum distichum. (*L.*) Common Barley. *The decorticated seeds.*

Humulus lupulus. (*L.*) The Hop. *The dried strobiles.*

Hydrargyrum. Mercury.

Hyoscyamus niger. (*L.*) Henbane. *The leaves.*

Iodinium. Iodine.

Ipecacuanha. *See* Cephaëlis.

Jalapa. *See* Exogonium.

Janipha manihot. (*Kunth.*) Mandioc Plant. *Fecula of the root; Tapioca.*

Juniperus communis. (*L.*) Common Juniper. *The tops and berries.*

Juniperus sabina. (*L.*) Savin. *The tops.*

Kino. *See* Pterocarpus.

Krameria triandra. (*Ruiz and Pavon.*) Rhatany. *The root.*

Lactuca sativa. (*L.*) Garden Lettuce. *The leaves.*

Lactuca virosa. (*L.*) Acrid Lettuce. *The leaves.*

Lactucarium. Lettuce Opium. *The inspissated juice of Lactuca sativa and Lactuca virosa.*

Lauro cerasus. *See* Cerasus.

Lavandula vera. (*De Candolle.*) Common Lavender. *The flowers.*

Lichen islandicus. *See* Cetraria.

Limones. *See* Citrus limonum.

Linum usitatissimum. (*L.*) Common Flax. *The seeds and the oil expressed from them.*

Lithargyrum. Litharge, or Protoxide of Lead partially fused.

Lixivus cinis. Impure Potash; Pearlash.

Lobelia inflata. (*L.*) Indian Tobacco. *The herb.*

Lupulina. Lupulin. *The yellow powder separated from the strobiles of* Humulus Lupulus (*L.*) *by rubbing and sifting.*

Lytta. *See* Cantharis.

Magnesiæ sulphas. Sulphate of Magnesia; Epsom Salts.

Manganesii peroxydum. Peroxide of Manganese; Pyrolusite.

Manna. *See* Fraxinus.

MARANTA ARUNDINACEA. (*L.*). Arrow Root. *Fecula of the tubers.*

MARMOR ALBUM. White Marble. *See* CALCIS CARBONAS.

MASTICHE. *See* PISTACIA.

MATICO. *See* ARTANTHE.

MEL. Honey. A saccharine secretion of *Apis mellifica.* (*L.*)

MELALEUCA CAJEPUTI. (*Roxburgh*). Cajeput Tree. *Volatile oil of the leaves.*

MENTHA PIPERITA. (*L.*) Peppermint. *The herb.*

MENTHA PULEGIUM. (*L.*) Pennyroyal. *The herb.*

MENTHA VIRIDIS. (*L.*) Spearmint. *The herb.*

MEZEREON. *See* DAPHNE.

MOMORDICA ELATERIUM. *See* ECBALIUM.

MORRHUA VULGARIS. (*L.*) The Common Cod. *The oil obtained from the liver.*

MOSCHUS. Musk. *Inspissated secretion found in the follicle of the prepuce of* Moschus moschiferus. (*L.*)

MUCUNA PRURIENS. (*De Candolle.*) Cowhage Plant. *The hairy down of the pod.*

MYRISTICA MOSCHATA. (*Thunberg.*) Nutmeg Tree. *The kernel of the fruit.*

MYROSPERMUM TOLUIFERUM. (*Achille Richard.*) Balsam of Tolu Tree. *Concrete balsamic exudation.*

MYRRHA. *See* BALSAMODENDRON.

MYRTUS PIMENTA. *See* EUGENIA.

NARTHEX ASSAFŒTIDA. (*Falconer.*) Assafœtida Tree. *The Gum-resinous exudation.*

NICOTIANA TABACUM. (*L.*) Tobacco. *The leaves.*

NITRUM. Nitre. *See* POTASSÆ NITRAS.

NUX MOSCHATA. *See* MYRISTICA.

NUX VOMICA. *See* STRYCHNOS.

OLEA EUROPÆA. (*L.*) The Olive Tree. *The oil obtained from the pericarp.*

OLEUM MORRHUÆ. Cod-Liver Oil. *See* MORRHUA.

OLEUM OLIVÆ. Olive Oil. *See* OLEA.

OLEUM RICINI. Castor Oil. *See* RICINUS.

OLEUM ROSÆ. Oil of Rose. *See* ROSA CENTIFOLIA.

OLEUM TEREBINTHINÆ. Oil of Turpentine; a volatile oil distilled from the common Turpentine obtained from *Pinus sylvestris.*

OPIUM. *See* PAPAVER SOMNIFERUM.

OPOÏDIA GALBANIFERA. (*Lindley.*) *The gum-resinous exudation called Galbanum.*

OSSA. Bones, of the Ox, or *Bos Taurus.* (*L.*)

OVUM. Egg, of the domestic hen, or *Phasianus Gallus.* (*L.*)

PAPAVER RHŒAS. (*L.*) Corn Poppy. *The petals.*

PAPAVER SOMNIFERUM. (*L.*) Opium Poppy. *The dried capsules, and the concrete juice obtained from the unripe capsules.*

PAREIRA. *See* CISSAMPELOS.

PICRÆNA EXCELSA. (*Lindley.*) Jamaica Quassia. *The wood.*

PIMENTA. *See* EUGENIA.

PIMPINELLA ANISUM. (*L.*) Anise. *The seed.*

PINUS ABIES. *See* ABIES.

PINUS SYLVESTRIS. (*L.*) Scotch Fir.
Yields common Turpentine, from which is obtained Resin, Tar, and Oil of Turpentine.

PIPER NIGRUM. (*L.*) Black Pepper. *Dried unripe berries.*

PISTACIA LENTISCUS. (*L.*) The Mastiche Tree. *The concrete resinous exudation.*

PIX BURGUNDICA. Burgundy Pitch. *See* ABIES.

PIX LIQUIDA. Tar. *See* PINUS SYLVESTRIS.

PLUMBI ACETAS. Acetate of Lead.

PLUMBI CARBONAS. Carbonate of Lead.

PLUMBI OXYDUM. Oxide of Lead; Litharge.

POLYGALA SENEGA. (*L.*) Seneka. *The root.*

POTASSÆ BICHROMAS. Bichromate of Potash.

POTASSÆ BITARTRAS. Bitartrate of Potash; Cream of Tartar.

POTASSÆ CHLORAS. Chlorate of Potash.

POTASSÆ NITRAS. Nitrate of Potash; Nitre.

POTASSII FERROCYANIDUM. Ferrocyanide of Potassium.

PRUNA. Prunes. *See* PRUNUS.

PRUNUS DOMESTICA. (*L.*) Common Plum Tree. *The dried fruit.*

PRUNUS LAUROCERASUS. *See* CERASUS.

PTEROCARPUS ERINACEUS. (*Lamarck.*) African Kino Tree. *Kino. The concrete exudation of this and other undetermined genera and species.*

PULEGIUM. *See* MENTHA.

PUNICA GRANATUM. (*L.*) Pomegranate Tree. *The bark of the root.*

PYROLA. Winter-green. *See* CHIMAPHILA.

QUASSIA. *See* PICRÆNA.

QUERCUS INFECTORIA. (*L.*) Nutgall Oak. *Galls, the excrescences formed by* Diplolepis gallæ tinctorum. (*Olivier.*)

QUERCUS PEDUNCULATA. (*W.*) Long-stalked Oak. *The bark.*

RESINA. Resin. *See* PINUS SYLVESTRIS.

RHATANIA. Rhatany. *See* KRAMERIA.

RHEUM. Rhubarb. *The root of undetermined species.*

RICINUS COMMUNIS. (*L.*) Castor Oil Plant. *The seeds from which the oil is expressed.*

ROSA CENTIFOLIA. (*L.*) Cabbage Rose. *The Petals yielding the essential oil, attar, or otto of roses.*

ROSA GALLICA. (*L.*) French Rose. *The petals.*

ROSMARINUS OFFICINALIS. (*L.*) Rosemary. *The tops.*

SABINA. Savin. *See* JUNIPERUS SABINÆ.

SACCHARUM LACTIS. Sugar of Milk.

SACCHARUM OFFICINARUM. (*L.*) Sugar Cane. *Brown Sugar.*

SACCHARUM PURIFICATUM. Refined Sugar; White Sugar. Prepared from the juice of *Saccharum officinarum.*

SAGO. *See* CYCAS.

SAPO DURUS. Hard Soap.

SARSAPARILLA. *See* SMILAX.

SASSAFRAS OFFICINALE. (*Nees von Esenbeck*). Sassafras Tree. *The root.*

SCAMMONIUM. *See* CONVOLVULUS.

SCILLA. SQUILL. *See* URGINEA.

SCOPARIUM. *See* CYTISUS.

SECALE CEREALE. (*L.*) Rye. *The Ergot, a peculiar excrescence supposed to be caused by a parasitical fungus.*

SENEGA. *See* POLYGALA.

SENNA. *See* CASSIA.

SERPENTARIA. *See* ARISTOLOCHIA.

SIMARUBA AMARA. (*Aublet.*) Mountain Damson. *The root bark.*

SINAPIS ALBA and S. NIGRA. (*L.*) White and Black Mustard. *The flour of the seeds.*

SMILAX OFFICINALIS. (*Kunth.*) Jamaica Sarsaparilla. *The root.*

SODÆ BIBORAS. Biborate of Soda; Borax.

SODÆ CARBONAS CRYSTALLIZATUM. Crystallized Carbonate of Soda.

SODÆ MURIAS. *See* SODII CHLORIDUM.

SODÆ SULPHAS. Sulphate of Soda; Glauber Salts.

SODII CHLORIDUM. Chloride of Sodium; Common Salt.

SOLANUM DULCAMARA. (*L.*). Bittersweet. *The twigs.*

SPARTIUM SCOPARIUM. *See* CYTISUS.

SPIRITUS PYROXILICUS. Pyroxylic Spirit. Sp. gr. 846.

SPIRITUS RECTIFICATUS. Rectified Spirit. Sp. gr. 840.

STANNUM. Tin.

STRAMONIUM. *See* DATURA.

STRYCHNOS NUX VOMICA. (*L.*) Nux Vomica Tree. *The seeds.*

STYRAX BENZOIN. (*Dryander.*) Benjamin Tree. *The concrete exudation. Benzoin.*

SUCCINUM. Amber. *The oil obtained by its destructive distillation.*

SULPHUR SUBLIMATUM. Sublimed Sulphur.

TABACUM. *See* NICOTIANA.

TAMARINDUS INDICA. (*L.*) Tamarind Tree. *The pulp of the pods.*

TAPIOCA. *See* JANIPHA.

TARAXACUM DENS-LEONIS. (*Desfontaines.*) Dandelion. *The root.*

TARTARI CRYSTALLI. *See* POTASSÆ BITARTRAS.

TEREBINTHINÆ OLEUM. Oil of Turpentine. *See* PINUS.

THERIACA. Treacle; Molasses; or the concentrated uncrystallized juice of *Saccharum Officinarum.*

THUS. Frankincense. *See* ABIES.

TOLUIFERA BALSAMUM. Tolu Balsam. *See* MYROSPERMUM.

TRAGACANTHA. *See* ASTRAGALUS.

TRITICUM ÆSTIVUM. (*L.*). Wheat. *The seeds, from which are prepared flour and starch.*

URGINEA SCILLA. (*Steinheil.*) Officinal Squill. *The bulb.*

UVA URSI. *See* ARCTOSTAPHYLOS.

UVÆ PASSÆ. Raisins. *See* VITIS.

VALERIANA OFFICINALIS. (*L.*) True Valerian. *The root.*

VINUM ALBUM HISPANICUM. Sherry Wine.

VITIS VINIFERA. (*L.*) Common Vine. *The fresh and dried fruit; viz., grapes and raisins.*

ZINCUM. ZINC.

ZINGIBER OFFICINALE. (*Roscoe.*) Common Ginger. *The rhizoma.*

WEIGHTS AND MEASURES

EMPLOYED IN THE PHARMACOPŒIA, AND TO BE USED BY APOTHECARIES.

WEIGHTS.

1 pound = 16 ounces = 7000 grains.
1 ounce = 8 drachms = 437·5 grains.
1 drachm = 3 scruples = 54·68 grains.
1 scruple = 18·22 grains.

SYMBOLS.

℔ represents a pound.
℥ ,, an ounce.
ʒ ,, a drachm.
℈ ,, a scruple.
gr. ,, a grain.

MEASURES.

1 gallon = 8 pints = 277·274 cubic inches.
1 pint = 20 fluid ounces.
1 fluid ounce = 8 fluid drachms.
1 fluid drachm = 3 fluid scruples.
1 fluid scruple = 20 minims.

SYMBOLS.

C represents a gallon.
O ,, a pint.
fl ℥ ,, an ounce.
fl ʒ ,, a drachm.
fl ℈ ,, a scruple.
m. ,, a minim.

The term *libra*, which properly signifies a pound, has been also used to designate a pint; but as the imperial pint of water weighs $1\frac{1}{4}$ pounds, such application of the term is no longer proper.

PREPARATIONS.

SECTION I.

ACETATES.

AMMONIÆ ACETATIS LIQUOR.
(*Ammoniæ Acetatis Aqua.*)

Take of Sesquicarbonate of Ammonia, in fine powder, two ounces and a half, or a sufficient quantity;
Dilute Acetic Acid, three pints:

To the acid, introduced into a bottle, gradually add the sesquicarbonate of ammonia to saturation, and dissolve by shaking, but without the aid of heat.

The specific gravity of this solution is 1012.

CUPRI SUBACETAS PRÆPARATUM.

Take of Subacetate of Copper, a convenient quantity:

Reduce it to powder, by careful trituration in a porcelain mortar, and separate the finer parts for use by means of a sieve.

PLUMBI SUBACETATIS LIQUOR.

Take of Acetate of Lead, six ounces;
Litharge, in fine powder, four ounces;
Distilled Water, two pints:

Dissolve the acetate of lead in the water, and, when the solution is raised to its boiling temperature, add the litharge in successive portions, and boil gently for half an hour. Add now as much distilled water as will supply what has been lost by evaporation, and filter through paper into a bottle, which should be furnished with an air-tight stopper.

The specific gravity of this solution is 1066.

PLUMBI SUBACETATIS LIQUOR COMPOSITUS.

Take of Solution of Subacetate of Lead;
Proof Spirit, of each, two fluid ounces;
Distilled Water, half a gallon:

Mix, filter, and preserve in a well-stopped bottle.

POTASSÆ ACETAS.

Take of Pure Carbonate of Potash, one pound;
Acetic Acid of Commerce (sp. gr. 1044), two pints:

To the acid, placed in a porcelain capsule, gradually add the carbonate of potash, and, when effervescence has ceased, boil for a couple of minutes. Add now, if necessary, a few drops of the same acetic acid, so that the solution may have a slightly acid reaction, and having evaporated to dryness, melt the residue, by the cautious application of heat, in a clean pot of cast iron. The liquefied salt is now to be removed from the fire, and when, upon cooling, it has solidified, it should be quickly broken into fragments of a suitable size, and enclosed in a bottle furnished with an air-tight stopper.

SODÆ ACETAS.

Take of Crystallized Carbonate of Soda of Commerce, one pound, or a sufficient quantity;
Acetic Acid of Commerce (sp. gr. 1044), one pint:

To the acid, placed in a porcelain capsule, add by degrees the carbonate of soda, and, taking care that there shall be a slight excess of acid, evaporate the resulting solution till a pellicle begins to form on its surface, and set it by to crystallize. The crystals,

when drained of the mother liquor, and dried by a short exposure to air on a porous brick, should be enclosed in a well-stopped bottle.

ZINCI ACETAS.

Take of Acetate of Lead, one pound;
Sheet Zinc, four ounces;
Distilled Water, two pints and a half;
Solution of Chlorinated Lime, a sufficient quantity:

Dissolve the acetate of lead in the water, and, having placed the solution in a cylindric jar, immerse in it the zinc rolled into a coil. After the lapse of twenty-four hours decant the liquid, and, having reduced it by evaporation to fifteen ounces, drop into it, while boiling hot, the solution of chlorinated lime, until a reddish precipitate ceases to form. It is now to be cleared by passing it through a filter, then acidulated by the addition of a few drops of acetic acid, and evaporated down to ten fluid ounces, when, upon cooling, crystals will form. These, and any additional crystals obtained by the concentration of the mother liquor, should be dried on blotting-paper placed on a porous brick, and then preserved in a well-stopped bottle.

SECTION II.

ACIDS.

ACIDUM ACETICUM GLACIALE.

Take of Acetate of Lead, any convenient quantity:

Place it in an oven at about the temperature of 300°, until it ceases to lose weight, and, having then brought it by trituration to a fine powder, let it be introduced into a flask or retort, and exposed to an atmosphere of dry muriatic acid gas, until very nearly the whole of it exhibits a damped appearance. The flask or retort being now connected in the usual manner with a Liebig's condenser, let heat be applied by means of a chloride of zinc bath, until the entire of the acetic acid shall have distilled over.

The muriatic acid gas should be *slowly* disengaged from the materials directed in the formula for *Acidum Muriaticum*, using eight ounces of salt for every pound of anhydrous acetate of lead; and, to render it quite dry, it should, before being conducted into the vessel containing the sugar of lead, be made to bubble through oil of vitriol, and then pass through

a long tube packed with small fragments of fused chloride of calcium.

The specific gravity of this acid is 1065.

ACIDUM ACETICUM FORTE.

(*Acidum Aceticum.*)

Take of Glacial Acetic Acid, six fluid ounces;
Distilled Water, four ounces:

Mix.

The specific gravity of this acid is 1066.

ACIDUM ACETICUM DILUTUM.

Take of Acetic Acid of Commerce (sp. gr. 1044), one pint;
Distilled Water, seven pints:

Mix.

The specific gravity of this acid is 1006.

ACIDUM ARSENIOSUM PURUM.

(*Arsenici Oxydum Album Sublimatum.*)

Take of Commercial White Oxide of Arsenic, any convenient quantity:

Place it in a Florence flask, the neck of which is made to pass into that of a second flask of larger size, and, applying to the *former* a regulated heat, by suspending it beneath a semi-cylindric hood of sheet iron, a few inches above a small charcoal fire, cause the arsenic to sublime into the *latter*. This

sublimation should be conducted under a flue with a good draught, so as to protect the operator from inhaling any vapours which may escape being condensed.

ACIDUM BENZOICUM.

Take of Benzoin any convenient quantity:

Place it in a small cylindric pot of sheet iron, furnished with a flange at its mouth; and having fitted the pot into a circular hole in a sheet of pasteboard, interpose between the pasteboard and flange a collar of tow, so as to produce a nearly air-tight junction. Let a cylinder of stiff paper, open at one end, eighteen inches high, and having a diameter at least twice that of the pot, be now placed in an inverted position on the pasteboard, and secured to it by slips of paper and flour paste; a couple of inches of the lower part of the pot being passed through a hole in a plate of sheet tin, which is to be kept from contact with the pasteboard by the interposition of a few corks, let a heat just sufficient to melt the benzoin (that of a gas-lamp answers well) be applied, and continued for at least six hours. Let the product thus obtained, if not quite white, be enveloped in bibulous paper, then subjected to powerful pressure, and again sublimed.

ACIDUM GALLICUM.

Take of Galls, in coarse powder, one pound;
Distilled Water, as much as may be necessary:

Having placed the galls in a porcelain dish, pour on as much water as will convert them into a thick paste, and keep them in this moistened condition for six weeks, at a temperature of between 60° and 70°, adding water from time to time, so as to supply what is lost by evaporation. Let the residue be boiled for twenty minutes, with forty-five ounces of water, and then placed on a calico filter. The filtered solution, on cooling, will afford a copious precipitate. Let this be drained on a calico filter, then subjected to strong expression, after having been first enveloped in blotting paper, and again dissolved in ten ounces of boiling water. When, upon ceasing to apply heat, the solution has cooled down to 80°, pour it off from the crystals which have formed, and, having washed these with three ounces of ice-cold water, dry them, first on blotting paper, and finally by a steam or water heat.

By boiling the undissolved portion of the galls with forty-five additional ounces of water, filtering into a capsule containing the liquor decanted from the crystals formed in the preceding process, evaporating down to the bulk of ten ounces, and cooling to 80°, an additional quantity of the crystallized acid will be obtained.

Or,

Take of Powdered Galls, one pound;
Oil of Vitriol of Commerce, twenty-six fluid ounces;
Water, five pints and fourteen ounces:

Steep the galls for twenty-four hours in one pint of the water, then transfer them to a glass or porcelain percolator, and pour on a pint and a half of the water in successive portions. Dilute five ounces of the oil of vitriol with an equal bulk of water, and, when the mixture has cooled, add it to the infusion obtained by percolation, stirring well, so as to bring them into perfect contact. Let the viscid precipitate which forms be separated by a filter, and to the solution which passes through add five ounces more of the oil of vitriol, which will yield an additional precipitate. This being added to that previously obtained, let both be enveloped in calico, and subjected to powerful pressure. Dissolve the residue in the rest of the oil of vitriol, this latter being first diluted with what remains of the water; boil the solution for twenty minutes, then allow it to cool, and set it by for a week. Let the deposit which has formed at the end of this period be pressed, dried, and then dissolved in three times its weight of boiling water, clearing the solution, if necessary, by filtration, and, when it has cooled down to 80°, decant the liquid from the crystalline sediment which has

formed, and wash the latter with three ounces of ice-cold water. Finally, let it be transferred to blotting-paper, and when deprived by this of adhering liquid, let it be dried perfectly, at a temperature not exceeding 212°.

The gallic acid obtained by either of the preceding processes may be rendered nearly white, by dissolving it in twenty times its weight of boiling distilled water, and causing the solution to traverse a stratum of prepared animal charcoal spread upon a calico filter. When the liquid passes through colourless it should be evaporated to one-sixth of its volume, and then suffered to cool in order to the separation of the crystallized acid.

ACIDUM HYDROCYANICUM DILUTUM.

(*Acidum Prussicum.*)

Take of Ferrocyanide of Potassium, two ounces;
Oil of Vitriol of Commerce, one fluid ounce;
Water, twelve ounces:

Dissolve the salt in eight ounces of the water, and dilute the oil of vitriol with the remaining four ounces. When both solutions are cold, introduce them successively into a retort or matrass, containing several slips of platinum foil, and connected in the usual manner with a Liebig's condenser; and, with the aid of a gentle heat, let eight ounces be distilled over. Finally, dilute the product with eight

ounces of distilled water, or so that the volume of the diluted acid shall be sixteen fluid ounces.

The specific gravity of this acid is 997.

ACIDUM MURIATICUM PURUM.

(*Acidum Muriaticum.*)

Take of Dried Chloride of Sodium, three pounds;
Oil of Vitriol of Commerce, forty-four fluid ounces;
Water, thirty-two ounces;
Distilled Water, forty-four ounces:

Dilute the oil of vitriol with the thirty-two ounces of water, and when the mixture has cooled, pour it upon the salt, previously introduced into a globular flask having a capacity of at least one gallon. A gentle heat being now applied, let the muriatic acid gas, as it escapes, be conducted into a bottle containing the distilled water, by means of a bent tube dipping about half an inch beneath its surface, and let the process be continued until the product measures three pints. Throughout this operation, particularly towards its close, the temperature of the water which absorbs the gas must, by the application of external cold, be prevented from rising.

The specific gravity of this acid is 1176.

ACIDUM MURIATICUM DILUTUM.

Take of Pure Muriatic Acid, four fluid ounces;
Distilled Water, thirteen ounces:

Mix.

The specific gravity of this acid is 1045.

ACIDUM NITRICUM PURUM.

(*Acidum Nitricum.*)

Take of Nitrate of Potash, two pounds;
Nitrate of Silver, two drachms, or as much as may be necessary;
Boiling Distilled Water, five pints;
Oil of Vitriol of Commerce, seventeen fluid ounces:

Dissolve the nitrate of silver in two ounces, and the nitrate of potash in the remainder of the water, and add by degrees the former solution to the latter, until a precipitate ceases to form. Pass now through a calico filter, and, having evaporated to perfect dryness the clear liquor thus obtained, introduce the residuum into a retort, whose neck is made to pass at least five inches into the glass tube of a Liebig's condenser; then pour upon it the oil of vitriol, and with a heat which, towards the close of the process, must be raised so as to liquefy the contents of the retort, cause the nitric acid to distil over.

The specific gravity of this acid is 1500.

ACIDUM NITRICUM DILUTUM.

Take of Pure Nitric Acid, four fluid ounces;
Distilled Water, twenty-nine ounces:

Mix.

The specific gravity of this acid is 1092.

ACIDUM NITRO-MURIATICUM.

Take of Pure Nitric Acid, one fluid ounce;
Pure Muriatic Acid, two fluid ounces:

Mix in a green glass bottle, furnished with an accurately ground stopper, and keep in a cool place.

ACIDUM SULPHURICUM PURUM.

Take of Oil of Vitriol of Commerce, any convenient quantity:

Introduce it into a small plain retort, containing a few slips of platinum foil, and, passing the beak of the retort into a Florence flask which is to be used as a receiver, with the aid of a small charcoal fire or gas-lamp, distil over one-tenth of the acid. This being rejected, and a fresh receiver of the same kind connected with the retort, let the distillation be resumed, and continued until no more than about an ounce of liquid remains behind. The distilled product should now be transferred to and preserved in a well-stopped bottle.

The specific gravity of this acid is 1846.

ACIDUM SULPHURICUM DILUTUM.

Take of Pure Sulphuric Acid, one fluid ounce;
Distilled Water, thirteen ounces:
Mix.

The specific gravity of this acid is 1084.

ACIDUM SULPHURICUM AROMATICUM.

Take of Rectified Spirit, one pint and a half;
Pure Sulphuric Acid, three and a half fluid ounces;
Ginger, bruised, one ounce;
Cinnamon, bruised, one ounce and a half:

Upon the spirit, placed in a stoppered bottle, pour the acid gradually, and shake, so as to produce a uniform mixture. Then add the cinnamon and ginger, and macerate for a week, with occasional agitation. Lastly, filter through paper, and preserve in a well-stopped bottle.

The specific gravity of this preparation is 974.

ACIDUM TANNICUM.

Take of Galls, in tolerably fine powder, eight ounces;
Sulphuric Ether, three pints;
Distilled Water, five ounces:

Incorporate the water and ether by agitation, and pour the resulting solution in successive portions upon the galls, previously introduced into a glass or

porcelain percolator. The liquid which accumulates in the lower bottle will consist of two distinct strata, the heavier of which is to be separated, and evaporated to dryness, finally applying an oven heat, which, however, should not exceed 212°.

From the lighter liquid the ether may be recovered by distilling it by means of a water bath, and with the aid of a Liebig's condenser.

SECTION III.

ALKALOIDS AND THEIR SALTS.

MORPHIA.

Take of Turkey Opium, cut into thin slices, one pound;
Distilled Water, six pints;
Chloride of Calcium, six drachms;
Prepared Animal Charcoal, as much as is sufficient:

Macerate the opium for twenty-four hours with a quart of the water, and decant. Macerate the residuum for twelve hours with a second quart of the water, decant, and repeat this process with the rest

of the water, subjecting the insoluble residuum to strong expression. Let the decanted solutions and expressed liquor be evaporated by a steam or water heat to the bulk of one pint, and then passed through a calico filter. Pour in now the chloride of calcium, first dissolved in four ounces of distilled water, and then proceed with the evaporation until the solution is so far concentrated, that upon cooling nearly the whole of it becomes solid. Let this solid matter be enveloped in a couple of folds of strong calico, and subjected to powerful pressure, the dark liquid which exudes being reserved for subsequent use. The squeezed cake is now to be acted upon with about half a pint of boiling water, and the whole being thrown upon a paper filter, the precipitate must be well washed. The filtered solution having been evaporated as before, cooled and solidified, the residue is to be again subjected to expression. If the product be not quite white, this process should be repeated a third time, the liquid forced out during expression being always preserved. Let the squeezed cake be dissolved in six ounces of boiling water, and, if necessary, cleared by filtration through prepared animal charcoal, the portion of it soaked by the filter being carefully washed out of it; and to the solution thus obtained let water of ammonia be added, in slight excess, and let the crystalline precipitate which forms when the liquor has cooled be collected on a paper filter, and washed with cold distilled water until the washings cease to give a pre-

cipitate upon being dropped into an acid solution of nitrate of silver. Lastly, let the filter be transferred to a porous brick, in order that the morphia it contains may become dry.

The liquids separated by expression from the muriate of morphia, in the preceding process, having been diluted with water, so as to occupy the bulk of four ounces, and then supersaturated slightly with ammonia, let the precipitate which forms be collected, after the lapse of six hours, on a filter, and washed with a little cold water. This, if redissolved in dilute muriatic acid, boiled with a little animal charcoal, and filtered, will, upon cooling, afford a crystalline deposit, from which, when pressed, dissolved in water, and supersaturated with ammonia, an additional quantity of morphia will be procured.

MORPHIÆ ACETAS.

Take of Morphia, in fine powder, one ounce;
Rectified Spirit, eight fluid ounces;
Acetic Acid of Commerce (sp. gr. 1044), four fluid drachms and a half, or as much as is sufficient:

Pour the spirit on the morphia, and, applying heat, gradually add the acetic acid until a neutral, or slightly acid solution is obtained. Let this be evaporated to the consistence of syrup, by a steam or water heat, and then set by for a few days, until

it solidifies. In operations on the great scale it will be worth while to remove the spirit by distillation.

MORPHIÆ ACETATIS LIQUOR.

Take of Acetate of Morphia, eighty-two grains;
Rectified Spirit, five fluid ounces;
Distilled Water, fifteen ounces:

Having added the spirit to the water, dissolve the acetate of morphia in the mixture, and, if the solution is not quite clear, pass it through a paper filter.

MORPHIÆ MURIAS.

Take of Morphia, in fine powder, one ounce;
Pure Muriatic Acid, four fluid drachms and a half, or a sufficient quantity;
Distilled Water, two ounces and a half:

Mix the acid with the water, heat to about 200°, and add the morphia, constantly stirring, so that a solution may be formed having a slightly acid reaction. Set this to cool for twelve hours, and let the crystals which separate be drained of the liquor which surrounds them, and dried on blotting-paper. The decanted liquor will, by further concentration and cooling, give additional crystals.

MORPHIÆ MURIATIS LIQUOR.

Take of Muriate of Morphia, ninety grains;
Rectified Spirit, five fluid ounces;
Distilled Water, fifteen ounces:

Mix the spirit and water, dissolve the muriate of morphia in the mixture, and, unless the solution be quite clear, pass it through a paper filter.

QUINÆ SULPHAS.

(*Quininæ Sulphas.*)

Take of Yellow Bark, in powder, one pound;
Water, one gallon and a half;
Oil of Vitriol of Commerce, half a fluid ounce;
Rectified Spirit, three pints;
Slacked Lime, one ounce;
Animal Charcoal, half an ounce;
Dilute Sulphuric Acid, half a fluid ounce, or a sufficient quantity:

Macerate the bark for twenty-four hours with half a gallon of the water, acidulated with two drachms of the oil of vitriol, then boil for half an hour, and decant. Boil the residue with a second half-gallon of the water, acidulated with one drachm of the oil of vitriol, and again decant, and let this process be a third time performed with the rest of the water, and the residual drachm of oil of vitriol. Let the

decanted liquors be evaporated to the bulk of one quart, and filtered through calico when cold, and to the solution thus obtained add the lime, until the mixture becomes decidedly alkaline. The precipitate, collected on a calico filter, is to be washed with about a pint of cold water, and, when partially dried on porous bricks, to be enveloped in blotting-paper and subjected to powerful pressure. The pressed mass must now be introduced into a flask containing a pint of the spirit, which is to be raised to and maintained at the temperature of ebullition for twenty minutes, and then, after the subsidence of the insoluble matter, decanted. This process having been repeated successively with the second and third pints of spirit, and the undissolved residuum having been subjected to expression, let the decanted and expressed liquors be cleared by passing them through a paper filter, and then subjected to distillation, so as to recover the entire of the spirit. The brown viscid mass which remains is now to be mixed with sixteen ounces of water, and, this being raised to the boiling point, the dilute sulphuric acid must be added, so as to produce a neutral or very slightly acid solution. Add now the animal charcoal, boil for five minutes, filter, and set to cool, in order that crystals may be formed, which are to be dried on blotting-paper by mere exposure to the atmosphere. The liquor decanted from the crystals will, by further concentration and cooling, yield an additional product.

QUINÆ MURIAS.

Take of Sulphate of Quina, one ounce ;
Chloride of Barium, one hundred and twenty-three grains ;
Distilled Water, thirty-two ounces :

Dissolve the chloride of barium in two ounces of the water, and the sulphate of quina in the remainder, raised to the temperature of ebullition. Mix the two solutions, evaporate to one-half, filter, and continue the evaporation by means of a steam or water heat, until crystalline spiculæ begin to appear. The solution is now to be permitted to cool, and the crystals which separate to be dried on blotting-paper. The liquor decanted off the crystals will, by farther concentration and cooling, yield an additional product.

STRYCHNIA.

Take of Nux Vomica, in powder, one pound ;
Water, one gallon and a half ;
Oil of Vitriol of Commerce, half a fluid ounce ;
Slacked lime, one ounce ;
Rectified Spirit, one quart ;
Dilute Sulphuric Acid ;
Solution of Ammonia, of each, a sufficient quantity;
Prepared Animal Charcoal, half an ounce :

Macerate the nux vomica for twenty-four hours

with half a gallon of the water, acidulated with two drachms of the acid, and, having boiled for half an hour, decant. Boil the residuum with a second half-gallon of the water, acidulated with one drachm of the acid; decant, and repeat this process with the remaining water and acid, the undissolved matter being finally submitted to strong expression. The decanted and expressed liquors having been passed through a filter, and then evaporated to the consistence of a syrup, let this be boiled with the rectified spirit for twenty minutes, the lime being added in successive portions during the ebullition, until the solution becomes decidedly alkaline. Filter through paper, and having drawn off by distillation the whole of the spirit, let the residuum be dissolved in the dilute sulphuric acid, and to the resulting liquid, after having been cleared by filtration, add the solution of ammonia in slight excess, and let the precipitate which forms be collected upon a paper filter, dried, and then dissolved in a minimum of boiling rectified spirit. Into this solution introduce the animal charcoal, digest for twenty minutes, then filter, and allow the residual liquor to cool, when the strychnia will separate in crystals.

STRYCHNIÆ MURIAS.

Take of Strychnia, one ounce;
Dilute Muriatic Acid, one fluid ounce, or a sufficient quantity;
Distilled Water, two ounces and a half:

Pour the acid upon the strychnia, and, adding the water, apply heat until a perfect solution is obtained. Let this cool, and let the crystals which form be dried upon bibulous paper. By evaporating the residual liquid to one-third of its bulk, and then allowing it to cool, an additional quantity of the salt will be obtained.

SECTION IV.

ARSENITES.

LIQUOR ARSENICALIS.

Take of Pure Arsenious Acid;
Pure Carbonate of Potash, of each, eighty-two grains;
Compound Tincture of Lavender, half a fluid ounce;
Distilled Water, as much as is sufficient:

Introduce the arsenious acid and carbonate of potash into a flask containing half a pint of water, and boil until a perfect solution is obtained. When this has cooled, add to it the compound tincture of lavender, and as much water as will make the bulk of the entire one pint.

The specific gravity of this solution is 1013.

SECTION V.

CARBONATES.

AMMONIÆ BICARBONAS.

Take of Commercial Sesquicarbonate of Ammonia, any convenient quantity:

Reduce it to a fine powder, and having spread it on a sheet of paper, expose it to the air for twenty-four hours. Let it be now enclosed in a well-stopped bottle.

CALCIS CARBONAS PRÆCIPITATUM.

Take of Chloride of Calcium, five ounces;
Crystals of Commercial Carbonate of Soda, thirteen ounces;
Boiling Water, two quarts:

Dissolve each salt in a quart of the water, mix the two solutions, and when the precipitate has subsided, draw off the supernatant liquor. Transfer the sediment to a calico filter, and wash it with boiling hot distilled water, until the washings cease to give a precipitate with nitrate of silver. Finally, dry the product at a temperature not exceeding 212°,

CRETA PRÆPARATA.

Take of Chalk, one pound;
Water, a sufficient quantity:

Reduce the chalk to a fine powder, and having triturated this in a large mortar with as much water as will give it the consistence of cream, fill the mortar with water, and stir well, giving the whole a circular motion. Allow the mixture to stand for fifteen seconds, and then decant the milky liquid into a large vessel. Triturate what remains in the mortar, adding as much water as was previously used, and, after allowing it to settle for fifteen seconds, again decant, and let this process be repeated several times. Let the fine sediment which subsides from the decanted liquids, be transferred to a calico filter, and dried at a temperature not exceeding 212°.

FERRI CARBONAS.

Take of Sulphate of Iron, eight ounces;
Crystallized Carbonate of Soda of Commerce, ten ounces;
Distilled Water, two gallons:

Dissolve each salt in one-half of the water, and both solutions being raised to the boiling temperature, mix them, and set the whole to rest in a covered vessel for six hours. The supernatant solution having been drawn off with a syphon, the precipitate

is to be drained on a calico filter, and then subjected to strong expression. Finally let it be dried at a temperature not exceeding 212°, pulverized, and preserved in a well-stopped bottle.

FERRI CARBONAS SACCHARATUM.

Take of Sulphate of Iron, eight ounces;
Crystallized Carbonate of Soda of Commerce, ten ounces;
Distilled Water, two gallons;
Refined Sugar, in fine powder, four ounces:

With the sulphate of iron, carbonate of soda, and water, prepare, as directed in the preceding formula, a carbonate of iron, and immediately after it has been expressed, mix with it the refined sugar. Dry the mixture at a temperature not exceeding 212°, and, having reduced it to a fine powder, preserve it in a well-stopped bottle.

MAGNESIÆ CARBONAS.

Take of Sulphate of Magnesia of Commerce, ten ounces;
Crystallized Carbonate of Soda of Commerce, twelve ounces;
Distilled Water, a sufficient quantity:

Dissolve each salt in two quarts of water, mix the two solutions cold, and boil the mixture for ten minutes. Transfer the precipitate to a calico filter, and

pour upon it, repeatedly, boiling water, until the washings cease to give a precipitate with a solution of nitrate of barytes. Lastly, dry by a heat not exceeding 212°.

MAGNESIÆ CARBONAS PONDEROSUM.

Take of Sulphate of Magnesia of Commerce, ten ounces;
Crystallized Carbonate of Soda of Commerce, twelve ounces;
Boiling Distilled Water, a sufficient quantity:

Dissolve the sulphate of magnesia in half a pint, and the carbonate of soda in a pint of the water, mix the two solutions, and evaporate the whole to dryness by means of a sand heat. Digest the residue for half an hour with one quart of boiling distilled water, and having collected the insoluble matter on a calico filter, treat it repeatedly with warm distilled water, until the washings cease to give a precipitate when suffered to drop into a solution of nitrate of barytes. Finally, dry the product at a heat not exceeding 212°.

POTASSÆ BICARBONAS.

Take of Carbonate of Potash from Pearl-ash, one pound;
Distilled Water, one quart;
Muriatic Acid of Commerce, one pint and a half;
Water, three pints;
Chalk in small fragments, one pound, or a sufficient quantity:

Dilute the muriatic acid with the water, and having dissolved the carbonate of potash in the *distilled* water, filter the solution into a three-pint bottle capable of being tightly closed by a cork traversed by a glass tube sufficiently long to pass to the bottom of the solution. A second bottle, in the bottom of which a few holes are drilled, and the mouth of which admits of being closed by a cork also traversed by a glass tube, having been filled with the chalk, and placed in a glass or porcelain jar of the same height with itself, but of somewhat larger diameter, the exterior ends of the two tubes are to be connected *air-tight* by a tube of vulcanized Indian rubber. The cork of the bottle containing the carbonate of potash being placed *loosely*, and that of the other bottle *tightly* in its place, and the muriatic acid having been poured into the jar in which is lodged the perforated bottle containing the chalk, the liberation of carbonic acid commences, and as soon

as it is judged that a sufficient amount of it has been developed to expel completely the air from the apparatus, the cork of the carbonate of potash bottle is to be forced into it quite tight, and the process is to be abandoned to itself for a week. At the end of this time numerous crystals of the bicarbonate of potash will have formed, which are to be removed, shaken in a capsule with twice their bulk of cold water, which is to be rapidly decanted, next drained, and finally dried on bibulous paper by mere exposure to the atmosphere. The mother liquor, if filtered, and concentrated to one-half, at a temperature not exceeding 110°, will yield additional crystals.

The tube immersed in the solution of carbonate of potash will have to be occasionally cleared of the crystals with which it is liable to become plugged, else the process will be suspended.

POTASSÆ CARBONAS E LIXIVO CINERE.

Take of Pearl-ash, ten pounds;
Distilled Water, one gallon :

Pour the water on the pearl-ash, and macerate for a week, occasionally stirring the mixture. Filter through calico, and having evaporated the solution nearly to dryness, reduce the heat, and stir constantly with an iron rod, until granular crystals are obtained. Let these be immediately enclosed in well-stopped bottles.

POTASSÆ CARBONAS PURUM.

(*Potassæ Carbonas e Tartari Crystallis.*)

Take of White Bitartrate of Potash, two pounds;
Sesquicarbonate of Ammonia, half an ounce;
Distilled Water, three pints:

Place the bitartrate of potash in an iron pot or crucible, and, constantly stirring it with an iron rod, expose it to a red heat until vapours cease to be evolved. Reduce the residuum to a coarse powder, and, having boiled it for twenty minutes with one quart of the water, filter through paper, washing the filter and its contents with the residual pint of water, in which the sesquicarbonate of ammonia has been first dissolved. The filtered solution is now to be evaporated to dryness, and, a low red heat being finally applied, the product is to be rapidly reduced to powder in a warm mortar, and enclosed in well-stopped bottles.

POTASSÆ CARBONATIS LIQUOR.

(*Potassæ Carbonatis Aqua.*)

Take of Pure Carbonate of Potash, ten ounces;
Distilled Water, one pint:

Dissolve and filter.

The specific gravity of this solution is 1310.

*

SODÆ BICARBONAS.

Take of Crystallized Carbonate of Soda of Commerce, two pounds;
Distilled Water, one quart;
Muriatic Acid of Commerce, one pint and a half;
Water, three pints;
Chalk, in fragments, one pound, or a sufficient quantity:

Having diluted the muriatic acid with the water, and dissolved the carbonate of soda in the *distilled* water, manipulate with these solutions, and with the chalk, as directed in the formula for *Potassæ Bicarbonas*, employing also the arrangement of apparatus there described. With the view, however, of obtaining from the mother liquor an additional quantity of bicarbonate, it is not necessary that the evaporation shall be preceded by a filtration.

SODÆ CARBONAS SICCATUM.

Take of Crystallized Carbonate of Soda of Commerce, any convenient quantity:

Expose it in a porcelain capsule to a pretty strong sand heat, until the liquid which first forms is converted into a dry cake, and having rubbed this to powder, enclose it in a bottle.

SODÆ CARBONATIS LIQUOR.

(*Sodæ Carbonatis Aqua.*)

Take of Crystallized Carbonate of Soda of Commerce, one ounce and a half;
Distilled Water, one pint:

Dissolve and filter.

The specific gravity of this solution is 1026.

ZINCI CARBONAS.

Take of Solution of Chloride of Zinc, one pint;
Crystallized Carbonate of Soda of Commerce, two pounds;
Boiling Distilled Water, six pints:

To the carbonate of soda dissolved in the water, add the solution of chloride of zinc, in successive portions, and boil until gas ceases to be evolved. Collect the precipitate on a calico filter, and, having poured on distilled water until the washings cease to cause turbidity when dropped into a solution of nitrate of silver containing free nitric acid, dry the product, first on blotting-paper placed on a porous brick, and finally by a steam or water heat.

SECTION VI.

CHLORINE AND ITS METALLIC COMPOUNDS.

CHLORINII LIQUOR.

(*Aqua Chlorinii.*)

Take of Peroxide of Manganese, in fine powder, half an ounce;
Muriatic Acid of Commerce, three fluid ounces;
Distilled Water, twenty-four ounces:

Introduce the peroxide of manganese into a gas bottle, and, having poured upon it the muriatic acid diluted with two ounces of water, apply a gentle heat, and, by suitable tubes, cause the gas, as it is developed, to bubble through two additional ounces of the water placed in an intermediate small phial, and then to pass to the bottom of a three-pint bottle, containing the remainder of the water, and whose mouth is loosely plugged with tow. When the air has been entirely displaced by the chlorine, let the bottle be disconnected from the apparatus in which the gas is generated, corked loosely, and shaken until the chlorine is absorbed. It should be now trans-

ferred to a pint bottle with a well-ground glass stopper, and preserved in a cool and dark place.

ANTIMONII TERCHLORIDI LIQUOR.

Take of Prepared Sulphuret of Antimony, one pound;
Muriatic Acid of Commerce, four pints:

Upon the sulphuret, placed in a porcelain capsule, pour the acid, and, constantly stirring, apply to the mixture, beneath a flue with a good draught, a gentle heat, which must be gradually augmented as the development of the gas begins to slacken, and finally carried to ebullition, and maintained at this temperature for fifteen minutes. The vessel being now removed from the fire, let its liquid contents be separated by filtration through calico, returning what passes through first, in order that a perfectly clear solution may be obtained. Transfer the liquid to another capsule, and, having boiled it down to the bulk of one quart, allow it to cool, and preserve it in a bottle furnished with a well-ground glass stopper.

The specific gravity of this solution is 1470.

BARII CHLORIDUM.

(*Barytæ Murias.*)

Take of Carbonate of Barytes, coarsely powdered, ten ounces;
Pure Muriatic Acid, eight fluid ounces;
Distilled Water, as much as is sufficient:

Dilute the acid with a pint and a half of the water, add the carbonate of barytes, and, when effervescence has ceased, evaporate to dryness. Transfer the residue to a Hessian crucible, and, having exposed it to a low red heat for twenty minutes, suffer it to cool, then reduce it to a coarse powder, and boil it for ten minutes with a pint and a half of water. Pour off the solution, boil the undissolved residue with ten additional ounces of water, and again decant. Pass the decanted solutions through a paper filter, and, having evaporated the resulting liquid to the bulk of about fourteen ounces, suffer it to cool that crystals may be formed. The mother liquor, by further evaporation and cooling, will yield additional crystals.

Or,

Take of Sulphate of Barytes, one pound and a half;
Lamp-black, four ounces;
Pure Muriatic Acid, fourteen fluid ounces;
Distilled Water, a sufficient quantity:

Heat the sulphate of barytes in a covered crucible,

and, while red hot, throw it into distilled water. Let it now, after being reduced to a very fine powder in the manner directed in the formula for *Creta Præparata*, be mixed intimately with the lamp-black, and exposed in a Hessian crucible for two hours to a strong red heat. The crucible being removed from the fire, and permitted to cool, its contents are to be reduced to a coarse powder, and boiled for fifteen minutes with two quarts of water, after which the solution is to be poured off on a paper filter. The undissolved residuum is to be again boiled with one quart of water, and the resulting liquor decanted on the same filter. To the filtered solutions, placed in a large capsule beneath a flue with a good draught, let the muriatic acid be gradually added, as long as it produces effervescence, and then, by means of a sand heat, evaporate to dryness. Boil the residuum with two quarts of water, pass the solution through a paper filter, and, having evaporated it down to one quart, suffer it to cool that crystals may be formed. By further concentration the mother liquor will yield additional crystals.

BARII CHLORIDI LIQUOR.

(*Barytæ Muriatis Aqua.*)

Take of Chloride of Barium, one ounce;
Distilled Water, eight ounces:

Dissolve and filter through paper.

The specific gravity of this solution is 1088.

CALCII CHLORIDUM.

(*Calcis Murias.*)

Take of Chalk, in small fragments, two pounds;
Pure Muriatic Acid, two pints and a half;
Distilled Water, six pints;
Slacked Lime, as much as is sufficient:

Into the acid, first diluted with the water, introduce the chalk in successive portions, and when the effervescence has ceased, boil for ten minutes. Add now, stirring well, a very slight excess of slacked lime, and throw the whole upon a calico filter. Acidulate the filtered solution slightly by adding a few drops of muriatic acid, then evaporate it to dryness, and expose the residuum to a low red heat in a Hessian crucible. Finally, reduce the product rapidly to a coarse powder in a warm mortar, and enclose it in a well-stopped bottle.

CALCII CHLORIDI LIQUOR.

(*Calcis Muriatis Aqua.*)

Take of Chloride of Calcium, three ounces;
Distilled Water, twelve ounces:

Dissolve, and filter through paper.
The specific gravity of this solution is 1225.

CALCIS CHLORINATÆ LIQUOR.

Take of Chlorinated Lime, half a pound;
Water, half a gallon:

Blend well the water and chlorinated lime by trituration in a large mortar, and, having transferred the mixture to a stoppered bottle, let it be well shaken several times for the space of three hours. Pour out now the contents of the bottle on a calico filter, and let the solution which passes through be preserved in a well-stopped bottle.

The specific gravity of this liquid is 1035.

HYDRARGYRI AMMONIO-CHLORIDUM.

(*Hydrargyri Submurias Ammoniatum.*)

Take of Corrosive Sublimate, one ounce;
Solution of Ammonia, nine fluid drachms;
Distilled Water, one pint:

Dissolve the corrosive sublimate in the water, with the aid of a gentle heat, pour the ammonia into the solution, and, having stirred the mixture well, collect the precipitate on a filter, and wash it with warm distilled water, until the liquid which passes through ceases to give a precipitate when dropped into an acid solution of nitrate of silver. Lastly, dry the product at a temperature not exceeding 212°.

SUBLIMATUM CORROSIVUM.

(*Hydrargyri Murias Corrosivum.*)

Take of Sulphate of Mercury, ten pounds;
Dried Chloride of Sodium, five pounds:

Reduce each salt to a fine powder, and, having mixed them carefully by trituration in a mortar, let the mixture be introduced into an iron pot lined with clay, and by a regulated heat, applied through the intervention of sand, let the corrosive sublimate be sublimed into an earthen head placed over the pot, and connected to it by means of lute. The product should be preserved in an opaque bottle.

CALOMELAS.

(*Calomelas Sublimatum.*)

Take of Sulphate of Mercury, ten pounds;
Mercury of Commerce, seven pounds;
Dried Chloride of Sodium, five pounds:

Incorporate as completely as possible the sulphate and the metallic mercury by prolonged trituration, and, having then added the chloride of sodium previously reduced to a fine powder, rub all well together until a perfectly equable mixture is obtained. Heat this, through the medium of sand, in a shallow iron pot with a flat bottom, lined with clay, and covered with a lid of cast iron, until the sublimate which attaches itself to a circular plug in the centre

of the lid (which admits of being removed and cleaned from time to time) neither exhibits minute globules of mercury, nor is rendered yellow by being touched with a solution of caustic potash. The whole being now permitted to cool down to the temperature of the air, the contents of the pot are to be transferred to a small hot-hearth or oven, whose door is made tight by a clay lute, and a regulated heat is to be applied so as to cause the vaporized calomel to pass into an adjacent chamber of considerable size, on the floor of which it will accumulate in the form of a fine white powder.

SODÆ CHLORINATÆ LIQUOR.

Take of Chlorinated Lime, half a pound;
Water, half a gallon;
Crystallized Carbonate of Soda of Commerce, seven ounces:

Blend well by trituration in a mortar the chlorinated lime with three pints of the water, and, having transferred the mixture to a stoppered bottle, let this be well shaken several times for the space of three hours. Pour out the contents of the bottle on a calico cloth, and to the filtered solution add the carbonate of soda dissolved in the remaining pint of water. Having stirred the mixture well for ten minutes, separate the liquid by a second filtration, and preserve it in a well-stopped bottle.

The specific gravity of this liquid is 1034.

ZINCI CHLORIDI LIQUOR.

Take of Sheet Zinc, one pound;
Muriatic Acid of Commerce;
Water, of each, two pints and a half, or as much as may be sufficient;
Solution of Chlorinated Lime, one fluid ounce;
Prepared Chalk, one ounce:

To the zinc, introduced into a porcelain capsule, gradually add the muriatic acid, applying heat, until the metal is dissolved. Filter the liquid through calico, and, having added to it the solution of chlorinated lime, concentrate at a boiling temperature, until it occupies the bulk of one pint. Permit the solution now to cool down to the temperature of the air, place it in a bottle with the chalk, and, having first added distilled water, so that the bulk of the whole may be a quart, shake the mixture occasionally for twenty-four hours. Finally, filter, and preserve the product in a well-stopped bottle.

The specific gravity of this liquor is 1593.

ZINCI CHLORIDUM.

Take of Solution of Chloride of Zinc, any convenient quantity:

Evaporate it down in a porcelain capsule, so far, that upon suffering the residual liquor to cool it solidifies. Subdivide the product rapidly into fragments, and enclose them in a well-stopped bottle.

SECTION VII.

CITRATES.

FERRI AMMONIO-CITRAS.

Take of Citric Acid, four ounces;
Distilled Water, sixteen ounces;
Sulphate of Iron, five ounces;
Solution of Ammonia, four fluid ounces, or as much as is sufficient:

Dissolve the citric acid in the water with the aid of heat, and, having converted the sulphate of iron into the hydrated peroxide of iron as directed in the formula for *Ferri Peroxydum Hydratum*, introduce the product into the capsule containing the solution of citric acid, and boil for twenty minutes. When the solution has cooled, add, constantly stirring, the ammonia in slight excess, and having transferred the solution thus obtained to delf dinner-plates, evaporate it to dryness by a steam or water heat. Lastly, chip off the film of dry salt which adheres to the plates, and preserve it in well-stopped bottles.

SECTION VIII.

CLYSTERS.

ENEMA CATHARTICUM.

Take of Sulphate of Magnesia, one ounce;
Olive Oil, one fluid ounce;
Mucilage of Barley, sixteen fluid ounces:

Dissolve the sulphate of magnesia in the mucilage, add the oil, and mix.

ENEMA FŒTIDUM.

Take of Tincture of Assafœtida, two fluid drachms;
Warm Water, twelve ounces:

Mix.

ENEMA TABACI.

(*Infusum Tabaci.*)

Take of Tobacco Leaf, one scruple;
Boiling Water, eight ounces:

Infuse for one hour, in a covered vessel, and strain.

ENEMA TEREBINTHINÆ.

Take of Oil of Turpentine, one fluid ounce;
Mucilage of Barley, sixteen fluid ounces:

Mix.

SECTION IX.

CONFECTIONS.

CONFECTIO AROMATICA.

Take of Aromatic Powder, five ounces;
Dried Saffron, in fine powder, half an ounce;
Oil of Cloves, half a fluid drachm;
Simple Syrup, five fluid ounces;
Clarified Honey, *by weight*, two ounces:

Rub the aromatic powder with the saffron, add the syrup and honey, and beat them together till thoroughly mixed; lastly add the oil of cloves.

CONFECTIO CATECHU COMPOSITUM.

(*Electuarium Catechu Compositum.*)

Take of Compound Powder of Catechu, five ounces;
Simple Syrup, five fluid ounces:

Add the syrup gradually to the powder, and mix them well together.

CONFECTIO PIPERIS NIGRI.

Take of Black Pepper, in fine powder;
Liquorice Root, in powder, of each, half an ounce;
Refined Sugar, one ounce;
Oil of Fennel, half a fluid drachm;
Clarified Honey, *by weight*, two ounces:

Rub the dry substances together into a very fine powder, then add the honey and oil, and beat them into a uniform mass.

CONFECTIO ROSÆ.

(*Conserva Rosæ.*)

Take of Dried Petals of the Gallic Rose, one ounce;
Rose Water, two fluid ounces;
Refined Sugar, eight ounces:

Macerate the petals in the rose water for two hours, add the sugar gradually, and beat them into a uniform mass.

Or,

Take of Fresh Petals of the Gallic Rose, three ounces;
Refined Sugar, eight ounces:

Rub the petals in a mortar, then add the sugar gradually, and beat them together till they are intimately mixed.

CONFECTIO SCAMMONII.

(*Electuarium Scammonii.*)

Take of Scammony, in fine powder, three ounces;
Ginger, in fine powder, one ounce and a half;
Oil of Caraway, one fluid drachm;
Oil of Cloves, half a fluid drachm;
Simple Syrup, three fluid ounces;
Clarified Honey, *by weight*, one ounce and a half:

Beat the powders with the syrup and honey into a uniform mass, then add the oils, and mix all well together.

CONFECTIO SENNÆ.

(*Electuarium Sennæ.*)

Take of Senna, in fine powder, two ounces;
Coriander, in fine powder, one ounce;
Oil of Caraway, half a fluid drachm;
Pulp of Prunes, five ounces;
Pulp of Tamarinds, two ounces;
Brown Sugar, eight ounces;
Water, two ounces:

Dissolve the sugar in the water, and beat the pulps with the syrup to a uniform consistence; having stirred in the powders and oil of caraway, mix all well together, and heat the mass thoroughly in a water bath for ten minutes.

*

CONFECTIO SULPHURIS.

Take of Sublimed Sulphur, two ounces;
Bitartrate of Potash, one ounce;
Clarified Honey, *by weight*, one ounce;
Syrup of Ginger;
Syrup of Saffron, of each, half a fluid ounce:

Triturate all the ingredients in a mortar, until they are intimately mixed.

CONFECTIO TEREBINTHINÆ.

Take of Oil of Turpentine, one fluid ounce;
Liquorice Root, in powder, one ounce;
Clarified Honey, *by weight*, two ounces:

Rub the oil of turpentine with the liquorice powder, then add the honey, and beat them all together into a uniform consistence.

SECTION X.

DECOCTIONS.

DECOCTUM ALOËS COMPOSITUM.

Take of Hepatic Aloes, in powder, one drachm and a half;
Myrrh, in powder;
Saffron, chopped fine, of each, one drachm;
Pure Carbonate of Potash, two scruples;
Extract of Liquorice, half an ounce;
Water, fourteen ounces;
Compound Tincture of Cardamoms, as much as is sufficient:

Rub the aloes, myrrh, and carbonate of potash together, then add the saffron and extract of liquorice, and boil for ten minutes, in a covered vessel; cool, strain through flannel, and add of Compound Tincture of Cardamoms as much as will make sixteen fluid ounces.

DECOCTUM CINCHONÆ.

Take of Peruvian Bark (Crown or Pale), in coarse powder, half an ounce;
Water, half a pint:

Boil for ten minutes, in a covered vessel, and strain while hot. The product should measure about eight ounces.

DECOCTUM DULCAMARÆ.

Take of Twigs of Woody Nightshade, dried, half an ounce;
Water, half a pint:

Boil for ten minutes, in a covered vessel, and strain. The product should measure about eight ounces.

DECOCTUM HÆMATOXYLI.

Take of Logwood, in small chips, one ounce;
Water, half a pint:

Boil for ten minutes, in a covered vessel, and strain. The product should measure about eight ounces.

DECOCTUM HORDEI.

Take of Pearl Barley, one ounce and a half;
Water, one pint and a half:

Wash the barley in cold water, reject the wash-

ings, and then boil for twenty minutes, in a covered vessel, and strain.

DECOCTUM LICHENIS ISLANDICI.

Take of Iceland Moss, one ounce;
Water, one pint and a half:

Wash the moss in cold water, to remove impurities, then boil it for ten minutes, in a covered vessel, and strain while hot. The product should measure about one pint.

DECOCTUM LINI COMPOSITUM.

(*Infusum Lini Compositum.*)

Take of Linseed, one ounce;
Liquorice Root, bruised, half an ounce;
Water, one pint and a half:

Boil for ten minutes, in a covered vessel, and strain while hot.

DECOCTUM MYRRHÆ.

Take of Myrrh, two drachms;
Water, eight ounces and a half:

Triturate the myrrh with the water gradually added, then boil for ten minutes, in a covered vessel, and strain. The product should measure about eight ounces.

DECOCTUM PAPAVERIS.

Take of White Poppy Capsules, sliced or bruised, four ounces;
Water, three pints:

Boil for ten minutes, in a covered vessel, and strain.

DECOCTUM PYROLÆ.

Take of Leaves of Winter-green, dried, half an ounce;
Water, half a pint:

Boil for ten minutes, in a covered vessel, and strain. The product should measure about eight ounces.

DECOCTUM QUERCUS.

Take of Oak Bark, bruised, one ounce and a half;
Water, one pint and a half:

Boil for ten minutes, in a covered vessel, and strain.

DECOCTUM SARSAPARILLÆ.

Take of Sarsaparilla Root, sliced, two ounces;
Boiling water, one pint and a half:

Digest the sarsaparilla with the water for one hour, then boil for ten minutes, in a covered vessel, cool, and strain. The product should measure a little more than a pint.

DECOCTUM SARSAPARILLÆ COMPOSITUM.

Take of Sarsaparilla Root, sliced, two ounces ;
Sassafras Root, in chips ;
Guaiacum Wood, turnings ;
Liquorice Root, bruised, of each, two drachms ;
Mezereon Root-Bark, one drachm ;
Boiling Water, one pint and a half :

Digest all the ingredients with the water, in a covered vessel, for one hour, then boil for ten minutes, cool, and strain. The product should measure a little more than a pint.

DECOCTUM SCOPARII.

Take of Broom-Tops, dried, half an ounce ;
Water, half a pint:

Boil for ten minutes, in a covered vessel, and strain. The product should measure about eight ounces.

DECOCTUM UVÆ URSI.

Take of Uva Ursi Leaves, bruised, half an ounce ;
Water, half a pint :

Boil for ten minutes, in a covered vessel, and strain. The product should measure about eight ounces.

SECTION XI.

ETHERS.

ÆTHER SULPHURICUS.

Take of Rectified Spirit, three pints;
Oil of Vitriol of Commerce, eight fluid ounces;
Fresh burned Lime, in fine powder, one ounce:

Mix the acid and ten ounces of the spirit in a glass matrass, capable of holding a quart at least, and, without allowing the mixture to cool, connect the matrass with a Liebig's condenser, and, applying a sufficient heat to maintain the liquid in brisk ebullition, commence the distillation. As it proceeds, admit gradually, through a glass tube traversing the cork of the matrass, the remainder of the spirit, regulating its influx so that the boiling liquid shall maintain a constant level; and, when the entire of it has been introduced, continue the application of the heat until the contents of the matrass become black, and show a tendency to froth over. (The tube through which the spirit enters should dip by its lower extremity, where its diameter is contracted, at least half an inch beneath the surface of the liquid in

the matrass; and the eduction pipe of the reservoir for the spirit, with which the exterior extremity of the glass tube is connected, should be furnished with a stop-cock, to regulate the descent of the spirit. This reservoir also should be placed at least three feet above the level of the boiling liquid.) The crude ether thus obtained is to be agitated with the pulverized quicklime, and then rectified, the distillation being continued as long as the product, on being well shaken, continues to have a specific gravity lower than 750. The resulting liquid should be preserved in a cool place in accurately stopped bottles.

A fresh reservoir being attached to the further end of the condenser, and the distillation resumed, a product will be obtained which may be substituted for rectified spirit in a subsequent ether process.

SPIRITUS ÆTHEREUS OLEOSUS.

(*Liquor Æthereus Oleosus.*)

Take of Rectified Spirit, one pint and a half;
Oil of Vitriol of Commerce, one pint and a half;
Sulphuric Ether, five fluid ounces:

Mix the oil of vitriol with one pint of the rectified spirit, in a matrass of glass, and, connecting this with a Liebig's condenser, apply heat, and distil, till a black froth begins to rise. Separate the uppermost or lighter stratum of the distilled liquid, and, having

exposed it in a capsule for twenty-four hours to the atmosphere, let the residual oil be transferred to a moist paper filter, and washed with a little cold water, so as to remove any adhering acid. Let it now be introduced into a bottle containing the remainder of the spirit mixed with the ether, and dissolved.

SPIRITUS ÆTHEREUS NITROSUS.

Take of Rectified Spirit, two pints and eight fluid ounces;
Pure Nitric Acid, three fluid ounces;
Water, one ounce;
Solution of Ammonia, a sufficient quantity:

Place six ounces of the spirit in a glass matrass capable of holding a quart, and connect this with a Liebig's condenser, whose further extremity is fitted loosely by a collar of tow into a thin eight-ounce phial. Add now the water to the nitric acid, and, having introduced half of the resulting solution into the matrass, through a safety syphon tube, close the mouth of this tube with a cork, and apply for a few moments a gentle heat, so as to cause a commencement of ebullition. When the *action* (which, shortly after commencing, proceeds with much violence, and should be moderated by the external application of cold water) has relaxed, introduce gradually the remainder of the acid, so as to restore it. The action having entirely ceased, agitate the distilled product

with half its bulk of the solution of ammonia, allow the mixture to rest for a few minutes, and, having separated the supernatant etherial liquid, mix four ounces of it with the rest of the spirit, and preserve the product in small, strong, and accurately stopped bottles.

In the performance of the preceding distillation the condenser should be fed with ice-cold water, and the phial, in which the distilled liquid is received, should be surrounded by a mixture of one part salt and two of pounded ice; or, when ice cannot be procured, with a mixture of eight parts of sulphate of soda in small crystals and five of commercial muriatic acid.

SECTION XII.

EXTRACTS.

EXTRACTUM ALOËS AQUOSUM.

Take of Hepatic Aloes, in coarse powder, four ounces;
Water, two pints:

Boil the aloes until it is dissolved; when the solution is cold and the dregs have subsided, pour off the clear liquid, and evaporate it to a proper consistence.

EXTRACTUM BELLADONNÆ.

(*Succus Spissatus Belladonnæ.*)

Take of fresh Belladonna Leaves, collected when the plant begins to flower, any convenient quantity:

Crush them in a mortar, express the juice, and allow it to stand for twenty-four hours. Pour off the clear liquor, and set it aside for subsequent use; and having placed the sediment on a calico filter, wash it with an equal bulk of distilled water, and mix the washings with the decanted liquor. When, by the application of a water heat, coagulation has occurred, skim off the coagulated matter, filter the hot liquid through flannel, mix in now the washed sediment, and evaporate to the consistence of a firm extract, by a steam or water bath, constantly stirring, particularly towards the close of the evaporation.

EXTRACTUM CANNABIS INDICÆ PURIFICATUM.

Take of Extract of Indian Hemp of Commerce, one ounce;
Rectified Spirit, four fluid ounces:

Dissolve the extract in the spirit, and when the dregs have subsided, decant the clear liquid, and evaporate, by means of a water bath, to the consistence of a soft extract.

EXTRACTUM COLCHICI ACETICUM.

Take of Colchicum Root, dried, four ounces;
Dilute Acetic Acid, eight fluid ounces:

Digest the root in the acid for fourteen days, then filter, and evaporate by means of a water bath, to the consistence of a soft extract.

EXTRACTUM CONII.

(*Succus Spissatus Conii.*)

Take of Fresh Hemlock Leaves, collected when the plant begins to flower, any convenient quantity:

The method of preparation is the same as for *Extractum Belladonnæ.*

EXTRACTUM GENTIANÆ.

Take of Gentian Root, in thin slices, one pound;
Distilled water, three pints:

Macerate the gentian in one pint and a half of the water for six hours, then strain and express. Add to the residue the remaining pint and a half of water, macerate again for six hours, strain and express. Finally, mix the liquors, and evaporate by a steam or water bath to a proper consistence.

EXTRACTUM GLYCYRRHIZÆ.

Take of Liquorice Root, in thin slices, dried and reduced to coarse powder, one pound;
Distilled Water, three pints:

The method of preparation is the same as for *Extractum Gentianæ.*

EXTRACTUM HYOSCYAMI.

(*Succus Spissatus Hyoscyami.*)

Take of Fresh Hyoscyamus Leaves, collected when the plant begins to flower, any convenient quantity:

The method of preparation is the same as for *Extractum Belladonnæ.*

EXTRACTUM OPII AQUOSUM.

Take of Opium, one pound;
Water, six pints:

Cut the opium into thin slices, macerate it for twenty-four hours in a quart of the water, and decant; macerate the residuum for twelve hours with a second quart of the water, decant, and repeat this process with the rest of the water, subjecting the insoluble residuum to strong expression. Filter the successive infusions and expressed liquor, and evaporate them in a water bath to a proper consistence.

EXTRACTUM RHEI.

Take of Rhubarb, in thin slices, one pound;
Water, five pints:

Macerate the rhubarb for twenty-four hours in three pints of the water, filter the liquor through a cloth, and express; macerate the residuum with the rest of the water for twelve hours, filter the liquor through the cloth previously used, and express the residuum strongly. The liquors, filtered again if necessary, are to be mixed, and evaporated to a proper consistence in a water bath.

EXTRACTUM SARSAPARILLÆ FLUIDUM.

Take of Sarsaparilla, one pound;
Boiling Water, eight pints;
Rectified Spirit, as much as is sufficient:

Digest the sarsaparilla in five pints of the water for two hours, at a temperature near 212°, and then decant. Add the rest of the water, digest again for two hours, and decant. Evaporate the mixed liquors by a steam or water heat to the consistence of a thin syrup, and, when the product has cooled, add as much rectified spirit as will make the entire twenty ounces.

SECTION XIII.

HONEYS.

MEL DEPURATUM.

(*Mel Despumatum.*)

Take of Fine Honey, any quantity:

Melt it in a water-bath, and strain it while hot through flannel.

MEL BORACIS.

Take of Borax, in fine powder, one drachm;
Clarified Honey, *by weight*, one ounce:

Mix them well together by trituration.

OXYMEL.

Take of Clarified Honey, *by weight*, one pound;
Acetic Acid of Commerce (sp. gr. 1044), three ounces:

Mix the acid with the honey previously heated.

SECTION XIV.

INFUSIONS.

INFUSUM ANTHEMIDIS.

(*Infusum Chamæmeli.*)

Take of Chamomile Flowers, dried, half an ounce;
Boiling Water, twelve ounces:

Infuse for fifteen minutes, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM AURANTII COMPOSITUM.

Take of Bitter Orange Peel, dried, three drachms;
Cloves, bruised, half a drachm;
Boiling Water, half a pint:

Infuse for half an hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM BUCHU.

Take of Buchu Leaves, bruised, half an ounce;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM CALUMBÆ.

Take of Calumba Root, in coarse powder, three drachms;
Cold Water, nine ounces:

Macerate for two hours, and strain. The product should measure about eight ounces.

INFUSUM CARYOPHYLLI.

Take of Cloves, bruised, two drachms;
Boiling Water, nine ounces:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM CASCARILLÆ.

Take of Cascarilla Bark, in coarse powder, one ounce;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM CATECHU COMPOSITUM.

Take of Catechu, in coarse powder, three drachms;
Cinnamon Bark, bruised, half a drachm;
Boiling Water, nine ounces:

Infuse for half an hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM CHIRETTÆ.

Take of Chiretta, bruised, two drachms;
Boiling Water, nine ounces and a half:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM CINCHONÆ.

Take of Peruvian Bark (Crown or Pale), in coarse powder, one ounce;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and filter through paper. The product should measure about eight ounces.

INFUSUM DIGITALIS.

Take of Foxglove Leaves, dried, one drachm;
Boiling Water, nine ounces:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM ERGOTÆ.

Take of Ergot of Rye, in coarse powder, two drachms;
Boiling Water, nine ounces:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM GENTIANÆ COMPOSITUM.

Take of Gentian Root, bruised;
Orange Peel, dried, of each two drachms;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM JUNIPERI.

Take of Juniper Berries, bruised, one ounce;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM KRAMERIÆ.

Take of Rhatany Root, bruised, half an ounce;
Boiling Water, nine ounces:

Digest for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM MATICO.

Take of Matico Leaves, cut small, half an ounce;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM MENTHÆ VIRIDIS.

Take of Spearmint, dried, and cut small, three drachms;
Boiling Water, half a pint:

Infuse for fifteen minutes, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM PAREIRÆ.

Take of Pareira Root, bruised, and torn into shreds, half an ounce;
Boiling Water, nine ounces:

Digest for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM POLYGALÆ.

(*Decoctum Senegæ.*)

Take of Polygala Root, bruised, half an ounce;
Boiling Water, nine ounces:

Digest for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM QUASSIÆ.

Take of Quassia Wood, rasped, one drachm;
Boiling Water, eight ounces and a half:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM RHEI.

Take of Rhubarb Root, in thin slices, two drachms;
Boiling Water, nine ounces:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM ROSÆ ACIDUM.

Take of Petals of the Gallic Rose, dried, two drachms;
Dilute Sulphuric Acid, one fluid drachm;
Boiling Water, half a pint:

Infuse the petals for one hour in the water, in a

covered vessel, strain, and add the acid. The product should measure about eight ounces.

INFUSUM SENNÆ COMPOSITUM.

Take of Senna Leaves, half an ounce;
Ginger Root, sliced, half a drachm;
Boiling Water, half a pint:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM SIMARUBÆ.

Take of Simaruba Root-Bark, bruised, two drachms;
Boiling Water, nine ounces:

Infuse for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

INFUSUM VALERIANÆ.

Take of Valerian Root, bruised, two drachms;
Boiling Water, nine ounces:

Digest for one hour, in a covered vessel, and strain. The product should measure about eight ounces.

SECTION XV.

IODINE AND IODIDES.

IODINIUM PURUM.

Take of Iodine of Commerce, any convenient quantity:

Introduce it into a deep porcelain capsule of a circular shape, and, having covered this as accurately as possible with a glass matrass filled with cold water, apply to the capsule a water heat for the space of twenty minutes, and then, withdrawing the heat, permit the capsule to cool. Should the sublimate attached to the bottom of the matrass include acicular prisms of a white colour and pungent odour, let it be scraped off with a glass rod, and rejected. The matrass being now returned to its previous position, a gentle and steady heat (that of a gas-lamp answers well) is to be applied, so as to sublime the entire of the iodine. Upon now lifting off the matrass, the purified product will be found attached to its bottom. When separated, it should be immediately enclosed in a bottle furnished with an accurately ground stopper.

ARSENICI ET HYDRARGYRI HYDRIODATIS LIQUOR.

Take of Pure Arsenic, in fine powder, six grains;
Pure Mercury, sixteen grains;
Pure Iodine, fifty grains and a half;
Alcohol, half a fluid drachm;
Distilled Water, nine ounces, or a sufficient quantity:

Rub together the arsenic, mercury, iodine, and spirit, until a dry mass is obtained, and, having triturated eight ounces of the water with this in successive portions, let the whole be transferred to a flask, and heated until it begins to boil. When cooled and filtered, let as much distilled water be added to it as will make the bulk of the solution exactly eight fluid ounces and six drachms.

FERRI IODIDUM.

Take of Pure Iodine, one ounce;
Filings, or thin Turnings of Wrought Iron, separated from impurities by a magnet, half an ounce;
Distilled Water, five ounces:

Introduce the iodine, iron, and four ounces of the water, into a Florence flask, and, having heated the mixture gently for ten minutes, boil until the solution loses its red colour. Pass the liquid now

through paper into a second flask, washing the filter with the remaining ounce of water, and, by means of a regulated heat, boil down the liquor until a drop of it taken out on the end of an iron wire solidifies on cooling. When the flask has assumed the temperature of the air, let the iodide of iron be extracted from it (by breaking the flask if necessary), and, after it has been submitted to powerful pressure, enveloped in blotting paper, let it be enclosed in a well-stopped bottle.

HYDRARGYRI IODIDUM RUBRUM.

Take of Corrosive Sublimate, one ounce;
Iodide of Potassium, ten drachms;
Distilled Water, two pints, or as much as is sufficient:

Dissolve the corrosive sublimate with the aid of heat in twenty-five ounces, and the iodide of potassium in five ounces of the water, and, when both solutions are cold, mix them. Decant the supernatant liquor when the precipitate has subsided, and, having collected this latter upon a paper filter, wash it with the remainder of the water. Finally, dry the product at a temperature not exceeding 212°, and preserve it in a close bottle.

HYDRARGYRI IODIDUM VIRIDE.

Take of Pure Mercury, one ounce;
Pure Iodine, five drachms;
Rectified Spirit, a sufficient quantity:

Rub the mercury and iodine in a porcelain mortar, occasionally adding a few drops of the spirit, until metallic globules are no longer visible, and the whole assumes a yellowish green colour. Dry the residue at a temperature not exceeding 100°, in a dark room, and preserve it in a bottle impervious to light.

PLUMBI IODIDUM.

Take of Nitrate of Lead;
Iodide of Potassium, of each, one ounce;
Distilled Water, two pints:

Dissolve, with the aid of heat, the nitrate of lead in a pint, and the iodide of potassium in half a pint of the water, and mix the two solutions when cold. Decant the clear solution when the precipitate has subsided, and having transferred the latter to a filter, wash it with the remainder of the water. Finally, dry the product at a temperature not exceeding 212°, and preserve it in a close bottle.

POTASSII IODIDUM.

(*Potassæ Hydriodas.*)

Take of Pure Iodine, reduced to powder, four ounces and a half;
Filings, or thin Turnings of Wrought Iron, separated from impurities by a magnet, two ounces;
Pure Carbonate of Potash, two ounces and a half, or a sufficient quantity;
Distilled Water, three pints and a half:

Heat gently five ounces of the water with the iron and three ounces of the iodine, for twenty minutes, and then boil until the solution loses its red colour. Filter this through paper, washing the filter with five ounces of water at a boiling temperature, and, in the solution thus obtained, dissolve, by digestion and shaking, the remainder of the iodine. To the carbonate of potash, dissolved in a quart of the water, and heated to 212° in a large porcelain capsule, add the solution of iron and iodine, and boil until effervescence ceases, adding, if necessary, a little more carbonate of potash, so that the liquor may be very slightly alkaline. Filter now, washing the precipitate with the remaining pint of water boiling hot, and, having evaporated the liquid till a pellicle begins to appear on its surface, let it be set by that crystals may form. These, when dried on blotting

paper, should be preserved in a bottle furnished with a perfectly tight stopper. The liquor from which the crystals have separated will, by further evaporation and cooling, afford an additional quantity of the salt.

POTASSII IODIDI LIQUOR COMPOSITUS.

Take of Pure Iodine, five grains;
Iodide of Potassium, ten grains;
Distilled Water, one pint:

Mix and dissolve.

SULPHUR IODATUM.

Take of Pure Iodine, in powder, one ounce;
Sublimed Sulphur, two drachms:

Mix the iodine and sulphur by trituration in a mortar, and, having transferred the powder to a Florence flask, heat it gently till fusion is effected. When the flask has cooled, let it be broken in order to the withdrawal of the product, which should be immediately enclosed, and preserved in a well-stopped bottle.

SECTION XVI.

LINIMENTS.

LINIMENTUM AMMONIÆ.

Take of Solution of Ammonia, one fluid ounce;
Olive Oil, three fluid ounces:

Mix them with agitation.

LINIMENTUM CALCIS.

Take of Lime Water;
Olive Oil, of each, two fluid ounces:

Mix, and agitate them well together.

LINIMENTUM CAMPHORÆ.

(*Oleum Camphoratum.*)

Take of Camphor, in thin slices, one ounce;
Olive Oil, four fluid ounces;

Dissolve the camphor in the oil with a gentle heat.

LINIMENTUM CAMPHORÆ COMPOSITUM.

Take of Camphor, five ounces;
Oil of Lavender, two fluid drachms;
Rectified Spirit, one pint and a half;
Stronger Solution of Ammonia, half a pint:

Dissolve the camphor and oil of lavender in the spirit, then add the solution of ammonia, and mix with agitation.

LINIMENTUM CANTHARIDIS.

Take of Spanish Flies, in fine powder, three ounces;
Olive Oil, twelve fluid ounces:

Digest the flies in the oil for three hours, in a steam or water bath, and strain through flannel; express the residuum and strain the oil thus obtained; finally, mix both products.

LINIMENTUM CROTONIS.

Take of Croton Oil, one fluid ounce;
Oil of Turpentine, seven fluid ounces:

Mix them with agitation.

LINIMENTUM HYDRARGYRI COMPOSITUM.

Take of Ointment of Mercury, one ounce;
Camphor Liniment;
Solution of Ammonia, of each, one fluid ounce:

Melt the ointment in the liniment, with a gentle heat, then add the ammonia, and mix them with agitation.

LINIMENTUM OPII.

(*Linimentum Anodynum.*)

Take of Tincture of Opium;
Soap Liniment, of each, one fluid ounce:

Mix them with agitation.

LINIMENTUM SAPONIS.

Take of Castile Soap, reduced to powder, two ounces;
Camphor, one ounce;
Proof Spirit, sixteen fluid ounces:

Dissolve the soap in the spirit with a gentle heat, then add the camphor, and, when it is dissolved, filter through paper; or, allow it to stand for some time, and decant the clear liniment.

LINIMENTUM TEREBINTHINÆ.

Take of Oil of Turpentine, five fluid ounces;
Ointment of Resin, eight ounces:

Melt the ointment, then add the oil of turpentine gradually, and stir the mixture until a uniform liniment is obtained.

SECTION XVII.

METALS.

ARSENICUM PURUM.

Take of White Oxide of Arsenic of Commerce, two drachms:

Place the oxide at the sealed end of a hard German glass tube, of about half an inch in diameter and eighteen inches long, and, having covered it with about eight inches of dry and coarsely pulverized charcoal, and raised the portion of the tube containing the charcoal to a red heat, let a few ignited coals be placed beneath the oxide, so as to effect its slow sublimation. When this has been accomplished, the

metallic arsenic will be found attached to the interior of the tube at its distant or cool extremity.

In conducting this process, the furnace used in the performance of an organic analysis should be employed, and the fuel should be ignited charcoal. It will be proper also to connect the open extremity of the tube with a flue, for the purpose of preventing the possible escape into the apartment of arsenical vapours; and, with the view of keeping it from being plugged by the metal, to introduce occasionally into it, as the sublimation proceeds, an iron wire through a cork fixed (but not air-tight) in its open extremity.

FERRI PULVIS.

Take of Peroxide of Iron;
Zinc, in small pieces;
Oil of Vitriol;
Water, of each a sufficient quantity:

Introduce into a gun-barrel as much of the peroxide of iron as will occupy the length of about ten inches, confining it to the middle portion of the barrel by plugs of asbestos. Let the gun-barrel be now placed in such a furnace as is used for organic analysis, one end of it being fitted by means of a cork into a bent adapter whose further extremity dips in water, while the other end (of barrel) is connected with a bottle containing the zinc and water, with the intervention, however, of a desiccation tube including fragments of caustic potash, and a small bottle half

filled with oil of vitriol. Matters being thus arranged, a little oil of vitriol is to be poured into the bottle containing the water and zinc, with the view of developing a sufficiency of hydrogen to expel the air from the interior of the apparatus. As soon as this object is considered to have been accomplished, the part of the tube containing the peroxide of iron must be surrounded with ignited charcoal, and, when it is thus brought to a low red heat, the oil of vitriol is to be gradually added to the zinc, so as to cause a steady current of hydrogen to pass through the oil of vitriol and desiccation tube into the gun-barrel. As soon as the reduction of the oxide is completed, which may be judged to have taken place when the gas bubbles escape at apparently the same rate through the water in which the adapter terminates, and through the bottle containing the oil of vitriol, the fire is to be removed (a slow current of hydrogen being still continued), and when the gun-barrel has assumed the temperature of the air, its metallic contents should be extracted, and preserved in an accurately stopped bottle.

HYDRARGYRUM PURUM.

Take of Quicksilver of Commerce, three pounds;
Pure Muriatic Acid, half a fluid ounce;
Distilled Water, two ounces:

Having introduced the quicksilver into a small glass retort, over the body of which a hood of sheet

iron is supported, let the heat of a gas lamp be applied until two-thirds of the metal has distilled over. Boil this for a few minutes with the acid and water, and having, by repeated affusion of distilled water, and decantation, removed the entire of the acid, let the metal be poured into a capsule, and dried by the application of heat.

HYDRARGYRUM CUM CRETA.

Take of Pure Mercury, one ounce;
Prepared Chalk, two ounces:

Rub the mercury and chalk in a porcelain mortar, until the metallic globules cease to be visible, and the mixture acquires a uniform gray colour.

HYDRARGYRUM CUM MAGNESIA.

Take of Pure Mercury, one ounce;
Carbonate of Magnesia, two ounces:

The method of preparation is the same as for *Hydrargyrum cum Cretâ.*

STANNI PULVIS.

Take of Grain Tin, a convenient quantity:

Melt the tin in a black lead crucible, and, while it is cooling, stir it with a rod of iron until it is reduced to powder. Let the finer particles be separated by means of a sieve, and when, after having been several

times in succession shaken with distilled water, the decanted liquor appears quite clear, let the product be dried and preserved for use.

SECTION XVIII.

MIXTURES.

MISTURA AMMONIACI.

Take of Gum Ammoniac, two drachms;
Water, eight ounces:

Triturate the gum with the water gradually added, until the mixture assumes the appearance of milk; then strain through muslin.

MISTURA AMYGDALÆ.

Take of Sweet Almonds, five drachms;
Refined Sugar, two drachms;
Gum Arabic, in powder, one drachm;
Distilled Water, eight ounces:

Steep the almonds in hot water for five minutes, and, having removed their external coat, beat them with the sugar and gum, in a mortar, into a coarse

powder; add the water gradually, and triturate so as to form a uniform mixture. Finally, strain through muslin.

MISTURA CAMPHORÆ.

Take of Tincture of Camphor, one fluid ounce;
Water, three pints:

Shake the tincture and water together in a bottle, and, after the mixture has stood for twenty-four hours, filter through paper.

MISTURA CRETÆ.

Take of Prepared Chalk, two drachms;
Simple Syrup;
Mucilage of Gum Arabic, of each, half a fluid ounce;
Cinnamon Water, seven fluid ounces:

Rub the chalk with the cinnamon water, then add the syrup and mucilage, and mix.

MISTURA FERRI AROMATICA.

Take of Peruvian Bark (Crown or Pale), in powder, one ounce;
Calumba Root, in coarse powder, three drachms;
Cloves, bruised, two drachms;
Filings of Iron, separated by a magnet, half an ounce:

Digest for three days, with occasional agitation, in

a covered vessel, with as much peppermint water as will give twelve ounces of a filtered product, and then add of

Compound Tincture of Cardamoms, three fluid ounces;
Tincture of Orange Peel, three fluid drachms:

This mixture should be kept in a well-stopped bottle.

MISTURA FERRI COMPOSITA.

Take of Myrrh, in powder, one drachm;
Pure Carbonate of Potash, half a drachm;
Essence of Nutmeg, one fluid drachm;
Rose Water, eight fluid ounces;
Refined Sugar, one drachm;
Sulphate of Iron, half a drachm:

Triturate the myrrh and carbonate of potash with the sugar, spirit of nutmeg, and seven ounces of the rose water, the latter being gradually added, until a uniform mixture is obtained; to this add the sulphate of iron, previously dissolved in the remaining ounce of rose water, and enclose the mixture at once in a bottle, which should be tightly corked

SECTION XIX.

MUCILAGES.

MUCILAGO ACACIÆ.

(*Mucilago Gummi Arabici*).

Take of Gum Arabic, four ounces;
Water, six ounces:

Dissolve the gum in the water with occasional stirring, then strain through flannel.

MUCILAGO AMYLI.

Take of Starch, half an ounce;
Water, half a pint:

Triturate the starch with the water gradually added, then boil for a few minutes.

MUCILAGO HORDEI.

Take of Ground Pearl Barley, half an ounce;
Water, sixteen ounces:

Triturate the barley with the water gradually added, then boil for a few minutes.

SECTION XX.

NITRATES.

ARGENTI NITRAS FUSUM.

Take of Refined Silver, three ounces;
Pure Nitric Acid, two fluid ounces;
Distilled Water, five ounces:

Place the silver in a flask, and, having poured upon it the acid and water, apply a gentle heat until the metal is dissolved. Transfer the solution to a porcelain capsule, decanting it off a heavy black powder which appears at the bottom of the flask, and, having evaporated it to dryness, raise the heat (in a dark room) until liquefaction is produced. Pour the melted nitrate of silver into a brass mould furnished with cylindric cavities of the size of a goose quill, and which admits of being opened by a hinge, and, when the salt has concreted, remove it, and preserve it in well-stopped bottles rendered impervious to light.

BISMUTHI SUBNITRAS.

Take of Bismuth, in small fragments, two ounces;
Pure Nitric Acid, three fluid ounces;
Distilled Water, one gallon:

Into the acid, first diluted with three ounces of the water, introduce the bismuth in successive portions, and having, when the spontaneous action has ceased, applied for ten minutes a heat approaching that of ebullition, decant the solution off any particles of metal which may remain undissolved. Evaporate the solution at a gentle heat until it is reduced to two fluid ounces, and then pour it into half a gallon of the water. When the precipitate which forms has subsided, decant the supernatant liquid, and agitate the sediment with the remainder of the water. After twelve hours, again decant, and, having placed the precipitate on a filter, dry it at a temperature of 212°, and reduce it to powder.

FERRI PERNITRATIS LIQUOR.

Take of Fine Iron Wire, free from rust, one ounce;
Pure Nitric Acid, three fluid ounces;
Distilled Water, a sufficient quantity:

Into the acid, first diluted with sixteen ounces of the water, introduce the iron wire, and leave them in contact until gas ceases to be disengaged. Filter the solution, and to it add as much water as will make its bulk one pint and a half.

The specific gravity of this solution is 1107.

HYDRARGYRI PERNITRATIS LIQUOR.

Take of Pure Mercury, two ounces;
Pure Nitric Acid, one fluid ounce and a half;
Distilled Water, one ounce and a half:

In the acid, first diluted with the water, dissolve the mercury, with the application of heat, and evaporate the solution to the bulk of two ounces and a half.

PLUMBI NITRAS.

Take of Litharge, in fine powder, five ounces;
Pure Nitric Acid, two fluid ounces;
Distilled Water, three pints;
Dilute Nitric Acid, a sufficient quantity:

To the litharge, placed in a porcelain dish, add the acid with a pint and a half of the water, and, applying a sand heat, and occasionally stirring the mixture, evaporate the whole to dryness. Upon the residue boil the remainder of the water, clear the solution by filtration, and, having acidulated it by the addition of a few drops of the dilute nitric acid, evaporate until a pellicle begins to form on its surface. The heat being now withdrawn, crystals will form, on the cooling of the solution, which should be dried on blotting-paper in a warm atmosphere, and preserved in a close bottle.

POTASSÆ NITRAS PURUM.

Take of Commercial Nitre, four pounds;
Distilled Water, five pints, or a sufficient quantity:

Having dissolved the nitre in two pints of the water at a boiling temperature, let the heat be withdrawn, and the solution be stirred constantly as it cools, in order that the salt may be obtained in very minute crystals. These, deprived as much as possible of the uncrystallized solution by decantation and draining, are to be washed in a glass or earthenware percolator with the remainder of the water, or until the liquid which trickles through ceases to give a precipitate when dropped into a solution of nitrate of silver. The contents of the percolator should now be extracted, and dried in an oven.

SECTION XXI.

OILS.

The VOLATILE or ESSENTIAL OILS may be obtained by the following general process.

The substance from which the oil is to be extracted is macerated for twenty-four hours, with five times its weight of water, in a sheet-tin or copper still, and, a condenser being then attached, half the water is drawn over by distillation, on the surface of which the oil will be found to float, unless (which is rarely the case) it should be heavier than water, when it will be found at the bottom of the receiver. The oil having been separated, the aqueous product, which is a saturated solution of the oil in water, is to be returned to the still, and the distillation resumed, and continued till the resulting liquid has the same volume as before. The oil is again separated, the watery product returned to the still, and the distillation resumed; and this process is to be repeated until it ceases to afford any additional oily product. The oil thus obtained is to be separated as completely as possible from water, and preserved in a well-stopped bottle.

In this way volatile oils may be obtained from the entire herb of

MENTHA PIPERITA;
MENTHA PULEGIUM;
MENTHA VIRIDIS:

From the seeds or fruit of

CARUM CARUI;
CUBEBA OFFICINALIS;
EUGENIA PIMENTA;
FŒNICULUM OFFICINALE;
JUNIPERUS COMMUNIS;
MYRISTICA MOSCHATA;
PIMPINELLA ANISUM:

From the flowers of

ANTHEMIS NOBILIS;
LAVANDULA VERA:

From the undeveloped dried flowers of

CARYOPHYLLUS AROMATICUS:

From the tops of

JUNIPERUS SABINA;
ROSMARINUS OFFICINALIS:

From the bark of

CINNAMOMUM ZEYLANICUM.

The water distilled over in the preparation of the several oils should be preserved for medical use.

SECTION XXII.

OINTMENTS.

ADEPS SUILLUS PRÆPARATUS.

Take of Lard of Commerce, any convenient quantity:

Melt it in twice its weight of boiling water, stirring the mixture constantly; then set the mixture aside to cool, and separate the lard when it has solidified.

UNGUENTUM ANTIMONII TARTARIZATI.

(*Unguentum Tartari Emetici.*)

Take of Tartar Emetic, in very fine powder, one drachm;
Ointment of White Wax, seven drachms:

Triturate the powder with the ointment in a mortar, until they are intimately mixed.

UNGUENTUM CANTHARIDIS.

Take of Liniment of Spanish Flies, eight fluid ounces;
White Wax, three ounces;
Spermaceti, one ounce:

Melt the wax and spermaceti in the oil, with a gentle heat, and stir the mixture constantly until it concretes.

UNGUENTUM CERÆ ALBÆ.

Take of White Wax, one pound;
Prepared Lard, four pounds:

Melt them together with a gentle heat, and stir constantly until the mixture concretes.

UNGUENTUM CETACEI.

Take of Spermaceti, one pound;
White Wax, half a pound;
Prepared Lard, three pounds:

Melt them together with a gentle heat, and stir constantly until cold.

UNGUENTUM CREASOTI.

Take of Creasote, one fluid drachm;
Ointment of White Wax, seven drachms:

To the ointment, liquefied by a moderate heat, add the creasote, and stir constantly until the mixture concretes.

UNGUENTUM CUPRI SUBACETATIS.

Take of Prepared Subacetate of Copper, half a drachm;
Ointment of White Wax, seven drachms and a-half:

Triturate the subacetate of copper with the ointment until they are intimately mixed.

UNGUENTUM ELEMI.

Take of Resin of Elemi, four ounces;
Ointment of White Wax, one pound:

Melt them together, strain through flannel, and stir the mixture constantly until it concretes.

UNGUENTUM GALLÆ.

Take of Galls, in very fine powder, one drachm;
Ointment of White Wax, seven drachms:

Rub the powdered galls with the ointment, until a uniform mixture is obtained.

UNGUENTUM HYDRARGYRI.

Take of Pure Mercury;
Prepared Lard, of each, one pound:

Rub them together, until metallic globules cease to be visible to the naked eye.

UNGUENTUM HYDRARGYRI IODIDI RUBRI.

Take of Red Iodide of Mercury, one drachm;
Ointment of White Wax, seven drachms:

Incorporate the iodide of mercury and ointment by careful trituration in a mortar.

UNGUENTUM HYDRARGYRI NITRATIS,

VEL

UNGUENTUM CITRINUM.

Take of Pure Mercury, one ounce;
Pure Nitric Acid, one fluid ounce;
Distilled Water, half an ounce;
Prepared Lard, four ounces;
Olive Oil, eight fluid ounces:

Mix the acid with the water, and dissolve the mercury in the mixture, with the aid of a gentle heat. Melt the lard with the oil, and, while the mixture is hot, add to it the solution of mercury, also hot; let the temperature of the mixture next be raised so as to cause effervescence, and then,

withdrawing the heat, stir the mixture with a porcelain spoon, until it concretes on cooling.

UNGUENTUM HYDRARGYRI OXYDI RUBRI.

(*Unguentum Hydrargyri Oxydi Nitrici.*)

Take of Red Oxide of Mercury, one drachm;
Ointment of White Wax, seven drachms:

Reduce the oxide to a very fine powder, and mix it intimately with the ointment by trituration.

UNGUENTUM IODINII COMPOSITUM.

Take of Pure Iodine, half a drachm;
Iodide of Potassium, one drachm;
Ointment of White Wax, fourteen drachms and a half.

Rub the iodine and iodide of potassium well together, in a glass or porcelain mortar, add the ointment gradually, and continue the trituration until a uniform ointment is obtained.

UNGUENTUM PICIS LIQUIDÆ.

Take of Tar, half a pint;
Yellow Wax, four ounces:

Melt the wax with a gentle heat, then add the tar, and stir the mixture constantly until it concretes.

UNGUENTUM PLUMBI ACETATIS.

Take of Acetate of Lead, in very fine powder, one ounce;
Ointment of White Wax, one pound:

Melt the ointment with a gentle heat, then add the acetate of lead gradually, and stir the mixture constantly until it concretes.

UNGUENTUM PLUMBI CARBONATIS.

Take of Carbonate of Lead, in very fine powder, three ounces;
Ointment of White Wax, one pound:

Melt the ointment with a gentle heat, then add the carbonate of lead gradually, and stir the mixture constantly until it concretes.

UNGUENTUM PLUMBI IODIDI.

Take of Iodide of Lead, in fine powder, one drachm;
Ointment of White Wax, seven drachms:

Mix the iodide of lead intimately with the ointment by trituration.

UNGUENTUM POTASSII IODIDI.

(*Unguentum Potassæ Hydriodatis.*)

Take of Iodide of Potassium, one drachm;
Distilled Water, half a drachm;
Ointment of White Wax, seven drachms:

Triturate the iodide of potassium with the water, then add the ointment, and rub them well together.

UNGUENTUM RESINÆ.

(*Unguentum Resinæ Albæ.*)

Take of Resin, in coarse powder, half a pound;
Yellow Wax, four ounces;
Prepared Lead, one pound:

Melt them together with a gentle heat, strain the mixture, while hot, through flannel, and stir constantly until it concretes.

UNGUENTUM SABINÆ.

Take of Savine Tops, dried, and in fine powder, one drachm;
Ointment of White Wax, seven drachms:

Mix the powder intimately with the ointment by trituration.

UNGUENTUM SULPHURIS.

Take of Sublimed Sulphur, one pound;
Prepared Lard, four pounds:

Mix them well by trituration.

UNGUENTUM ZINCI OXYDI.

Take of Oxide of Zinc, two ounces;
Ointment of White Wax, twelve ounces:

Melt the ointment with a gentle heat, and having added oxide of zinc, mix them intimately, and stir constantly until the mixture concretes.

SECTION XXIII.

OXIDES.

Class I.—(*ALKALIES.*)

AMMONIÆ LIQUOR.

(*Ammoniæ Causticæ Aqua.*)

Take of Sal Ammoniac, in fine powder;
Fresh-burned Lime, of each eight ounces;
Water, four ounces;
Distilled Water, sixteen ounces:

Pour on the lime the four ounces of water, and, when the slaked lime has cooled, mix it well with the sal ammoniac by trituration in a mortar. Introduce the mixture into a matrass of glass, or, if such can be had, an iron bottle, and, having closed this by means of a cork perforated by a suitable tube for conveying off the gas, apply, with the intervention of sand, a gentle heat, which must be gradually augmented, and cause the ammonia, as it is evolved, to pass first through a small Wolfe's bottle furnished with a syphon safety-tube containing mercury, and thence to the bottom of a pint bottle containing the

distilled water. The temperature of the latter must be prevented from rising as the absorption of the gas proceeds, by surrounding the bottle which contains it with cold water, which should be frequently renewed.

The specific gravity of this solution is 950.

AMMONIÆ LIQUOR FORTIOR.

Apply heat to a mixture of sal ammoniac and slaked lime, using the proportions given in the preceding formula, and cause the gas, as it is disengaged, to pass to the bottom of a bottle containing eight ounces of *Ammoniæ Liquor;* the temperature of the latter being prevented from rising by surrounding it with cold water, which should be frequently renewed.

Or,

Pass the ammoniacal gas disengaged from eight ounces of sal ammoniac into five ounces of distilled water, taking care to keep the receiver cool.

The specific gravity of this solution is 900.

POTASSA CAUSTICA.

Take of Solution of Caustic Potash, any convenient quantity:

Boil it in a silver or bright iron vessel, until its water has been evaporated away, and then raise the temperature until ebullition ceases, and a liquid is

obtained which flows like oil. Pour this out upon a silver or iron dish, and, the moment it has set, break it into fragments, and enclose these in a green-glass bottle furnished with an air-tight stopper.

POTASSÆ CAUSTICÆ LIQUOR.

(*Potassæ Causticæ Aqua.*)

Take of Pure Carbonate of Potash, one pound;
Fresh-burned Lime, ten ounces;
Distilled Water, one gallon and seven ounces:

Slake the lime with seven ounces of the water. Dissolve the carbonate of potash in the remainder of the water, and having raised the solution to the boiling point in a clean iron vessel, gradually mix with it the slaked lime, and continue the ebullition for ten minutes with constant stirring. Remove the vessel now from the fire, and when, by the subsidence of the insoluble matters, the supernatant liquor has become perfectly clear, transfer it by means of a syphon to a green-glass bottle furnished with an air-tight stopper.

The specific gravity of this solution is 1068.

POTASSA CAUSTICA CUM CALCE.

Take of Caustic Potash;
Fresh-burned Lime, of each, one ounce:

Rub them both rapidly to powder in a warm mortar, and introduce the mixture with as little delay as possible into a bottle furnished with an air-tight stopper.

(Class II.—*EARTHS.*)

CALCIS LIQUOR.

(*Calcis Aqua.*)

Take of Fresh-burned Lime, two ounces;
Distilled Water, half a gallon:

Having slaked the lime with an ounce and a half of the water, introduce it into a well-stopped bottle containing the remainder of the water, and shake well for the space of five minutes. After twelve hours the excess of lime will have subsided, and the clear lime-water may be drawn off with a syphon as it may be required. When the entire of the solution has been withdrawn, it may be renewed by shaking the sediment at the bottom of the bottle with another half gallon of water; and, if the lime be pure, and the bottle be accurately stopped, this process may be successfully repeated three or four times.

MAGNESIA.

Take of Carbonate of Magnesia, any convenient quantity:

Introduce it into a clay crucible closed loosely by a lid, and let this be exposed to a low red heat as long as a little of the magnesia, taken from the central part of the crucible, when cooled, and dropped into dilute sulphuric acid, continues to give rise to effervescence. Let the product be preserved in well-closed bottles.

Class III.

ANTIMONII OXYDUM.

(*Antimonii Oxydum Nitromuriaticum.*)

Take of Solution of Terchloride of Antimony, sixteen fluid ounces;
Water, two gallons;
Solution of Caustic Potash, one pint;
Distilled Water, a sufficient quantity:

Pour the antimonial solution into the water, and, having stirred the mixture well, set it by until the white precipitate which forms has subsided. Draw off the supernatant liquid by decantation, or the syphon, and, having agitated the sediment with a gallon of distilled water, allow the whole to stand till the oxide has fallen to the bottom. Decant again, and

having placed the sediment on a calico filter, wash it with distilled water until the liquid which trickles through reddens blue litmus paper only in a very slight degree. The precipitate is now to be shaken occasionally for half an hour, with the solution of caustic potash, and then washed on a filter with boiling distilled water, until the washings cease to give a precipitate on being dropped into an acid solution of nitrate of silver. Lastly, let the product be dried at a heat not exceeding 120°.

ARGENTI OXYDUM.

Take of Nitrate of Silver, half an ounce;
Lime-water, half a gallon, or a sufficient quantity;
Distilled Water, half a pint:

Dissolve the nitrate of silver in four ounces of the distilled water, and, having poured the solution into a bottle containing the lime-water, shake the mixture well, and then set it by till the sediment subsides. The supernatant solution being drawn off, let the sediment be placed upon a filter, and, when washed with the remainder of the distilled water, let it be dried at a heat not exceeding 212°, and preserved in a bottle.

FERRI OXYDUM MAGNETICUM.

(*Ferri Oxydum Nigrum.*)

Take of Sulphate of Iron, twelve ounces;
Solution of Caustic Potash, fifty-four ounces;
Distilled Water, a sufficient quantity:

Convert, as is directed in the formula for *Ferri Peroxydum Hydratum*, eight ounces of the sulphate of iron into a persulphate.

To the solution thus obtained add the four remaining ounces of the sulphate of iron first dissolved in half a pint of distilled water. Mix well the resulting liquid with the solution of caustic potash, and, having boiled for five minutes in an iron vessel, collect the precipitate on a calico filter, and wash it with boiling distilled water until the liquid which passes through ceases to give a precipitate when dropped into a solution of chloride of barium. Lastly, let the precipitate be dried by a steam or water heat, and, having been first reduced to a fine powder, let it be enclosed in a well-stopped bottle.

FERRI PEROXYDUM.

(*Ferri Oxydum Rubrum.*)

Take of Hydrated Peroxide of Iron, any convenient quantity:

Place it in an oven, on a few folds of filtering paper, and when it has become dry to the touch, transfer it to a covered crucible, and expose it for a few minutes to an obscure red heat.

FERRI PEROXYDUM HYDRATUM.

Take of Sulphate of Iron, eight ounces;
Pure Sulphuric Acid, six fluid drachms;
Pure Nitric Acid, half a fluid ounce;
Solution of Caustic Potash, one quart;
Distilled Water, twelve ounces:

To ten ounces of the water add the sulphuric acid, and in the mixture with the aid of heat dissolve the sulphate of iron. Mix the nitric acid with the remainder of the water, and, having added the diluted acid to the solution of sulphate of iron, concentrate by boiling, until, upon the sudden disengagement of much gas, the liquid passes from a dark to a red colour. Let this be now poured into the solution of caustic potash, and, when the mixture has been well stirred, place it on a calico filter, and let the precipitate be washed with distilled water until the liquid which passes through ceases to give a preci-

pitate when dropped into a solution of chloride of barium. Lastly, enclose the precipitate, while in the pasty state, in a porcelain pot whose lid is made air-tight by a luting of lard, so as to prevent the loss of water by evaporation.

HYDRARGYRI OXYDUM RUBRUM.

(*Hydrargyri Oxydum Nitricum.*)

Take of Pure Mercury, eight ounces;
Pure Nitric Acid, three fluid ounces;
Distilled Water, six ounces:

In the acid, diluted with the water, digest the mercury, using at first a very gentle heat, but, when the action has ceased, finally boiling for a few minutes; and, having decanted the solution, evaporate to dryness. Let the residuum, first reduced to powder, be transferred to a shallow cast-iron pot with a flat bottom, and loosely covered by a fire-tile lid; and in this let it be exposed to the heat of a slow fire until red vapours cease to be given off. The heat must now be withdrawn, and, when the pot has cooled, its contents should be transferred to bottles.

ZINCI OXYDUM.

Take of Carbonate of Zinc, any convenient quantity:

Place it in a clay crucible furnished with a cover, and expose it to a very low red heat until a portion

of the contents of the crucible, taken from its centre, ceases to effervesce on being dropped into dilute sulphuric acid.

SECTION XXIV.

PHOSPHATES.

CALCIS PHOSPHAS PRÆCIPITATUM.

Take of Ox-bones, burned to whiteness in a clear fire, four ounces;
Pure Muriatic Acid, six fluid ounces;
Distilled Water, one quart;
Solution of Ammonia, eleven fluid ounces;
or as much as may be sufficient:

Reduce the calcined bones to a fine powder, and digest upon this the acid, diluted with a pint of the water, until it is dissolved. To the solution, first cleared (if necessary) by filtration, add the remainder of the water, and then the solution of ammonia, until the mixture acquires an alkaline reaction, and, having collected the precipitate upon a calico filter, let it be washed with boiling distilled water as long as the liquid which passes through gives rise to a precipi-

tate, when permitted to drop into a solution of nitrate of silver acidulated with nitric acid. The washed product should now be dried by exposing it for some days on porous bricks to a warm atmosphere.

SODÆ PHOSPHAS.

Take of Ox-bones, burned to whiteness in a clear fire, ten pounds;
Oil of Vitriol of Commerce, fifty-six fluid ounces;
Distilled Water, four gallons and a half, or a sufficient quantity;
Crystallized Carbonate of Soda of Commerce, twelve pounds; or a sufficient quantity:

On the bone-earth, reduced to a fine powder, and placed in a large dish of earthenware or lead, pour the oil of vitriol and mix well with a glass or porcelain rod, so that every particle of the powder may be moistened by the acid. After the lapse of twenty-four hours, add gradually, and with constant stirring, one gallon of distilled water, and digest for forty-eight hours, pouring on occasionally a little water, so as to restore what has been lost by evaporation. Add now a second gallon of the water, and, having well agitated the mixture, and continued the digestion for another hour, let the whole be thrown upon a calico filter; and, when the liquid has ceased to trickle through, let the pre-

cipitate be repeatedly washed with boiling distilled water, until the washings, allowed to drop on blue litmus paper, redden it only in a very slight degree. Concentrate the filtered solution and washings to the bulk of one gallon, and, having set it by for twenty-four hours, pass it through a filter. To the filtered solution, raised to the temperature of 212°, gradually add the carbonate of soda previously dissolved in two gallons of boiling water, until the mixture acquires a slight alkaline reaction, and then place the whole upon a calico filter. The clear solution which passes through, when concentrated until a film begins to form on its surface, will, upon cooling, afford crystals of phosphate of soda; and from the mother liquor an additional product may be obtained by further concentration. The salt, when dried on blotting-paper, should be preserved in a well-stopped bottle.

SECTION XXV.

PILLS.

PILULÆ ALOËS COMPOSITÆ.

Take of Hepatic Aloes, in powder, two ounces;
Extract of Gentian, one ounce;
Oil of Caraway, one fluid drachm;
Treacle, *by weight*, one ounce:

Beat them together until they are thoroughly incorporated.

PILULÆ ALOËS CUM MYRRHA.

Take of Hepatic Aloes, in powder, two ounces;
Myrrh, in powder, one ounce;
Dried Saffron, in powder, half an ounce;
Treacle, *by weight*, two ounces and a half:

Triturate the aloes, myrrh, and saffron together, and sift them; then add the treacle, and beat all the ingredients into a uniform mass.

PILULÆ ASSAFŒTIDÆ COMPOSITÆ.

Take of Assafœtida, two ounces;
Galbanum;
Myrrh;
Treacle, *by weight*, of each one ounce:

Heat all the ingredients in a capsule, by means of a steam or water bath, and stir the mass until it assumes a uniform consistence.

PILULÆ CALOMELANOS COMPOSITÆ.

Take of Calomel;
Precipitated Sulphuret of Antimony, of each, one drachm;
Guaiacum Resin, in powder, two drachms;
Castor Oil, one fluid drachm:

Triturate the calomel with the antimony, then add the resin and oil, and beat the whole into a uniform mass.

PILULÆ COLOCYNTHIDIS COMPOSITÆ.

Take of Pulp of Colocynth, in fine powder, one ounce;
Hepatic Aloes, in fine powder, two ounces;
Scammony, in fine powder;
Castile Soap, of each, one ounce;
Oil of Cloves, one fluid drachm;
Treacle, *by weight*, ten drachms:

Reduce the soap to a fine powder, and mix it with the colocynth, aloes, and scammony; then rub all together with the oil of cloves and treacle, and beat them into a mass of a uniform consistence.

PILULÆ HYDRARGYRI.

Take of Pure Mercury, two ounces;
Confection of Roses, three ounces;
Liquorice Root, in fine powder, one ounce:

Rub the mercury with the confection, until the metallic globules are no longer visible; then add the liquorice powder, and mix the whole well together.

PILULÆ RHEI COMPOSITÆ.

Take of Rhubarb, in fine powder, one ounce and a half;
Hepatic Aloes, in fine powder, nine drachms;
Myrrh, in fine powder;
Castile Soap, of each, six drachms;
Oil of Peppermint, one fluid drachm;
Treacle, *by weight*, two ounces:

Reduce the soap to a fine powder, and triturate it with the rhubarb, aloes, and myrrh; then add the treacle and oil of peppermint, and beat the whole into a uniform mass.

PILULÆ SAPONIS COMPOSITÆ.

(*Pilulæ Saponis cum Opio.*)

Take of Opium, in fine powder, half an ounce;
Castile Soap, two ounces;
Distilled Water, half a fluid drachm, or as much as is sufficient:

Reduce the soap to a fine powder, add the opium and water, and beat the mixture into a mass of a uniform consistence.

PILULÆ SCILLÆ COMPOSITÆ.

Take of Squill, in fine powder, two drachms and a half;
Ginger, in fine powder;
Ammoniac, in fine powder;
Castile Soap, of each, two drachms;
Treacle, *by weight*, half an ounce:

Reduce the soap to powder, and triturate it with the squill, ginger, and ammoniac; then add the treacle, and beat them all into a mass of a uniform consistence.

SECTION XXVI.

PLASTERS.

EMPLASTRUM AMMONIACI.

Take of Gum Ammoniac, in coarse powder, four ounces;
Proof Spirit, four fluid ounces:

Dissolve the gum ammoniac in the spirit, with the aid of heat, and strain; then evaporate the solution

by means of a steam or water bath, stirring constantly until it acquires a proper consistence.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.

Take of Ammoniac Plaster, four ounces;
Mercurial Plaster, eight ounces:

Melt them together by means of a steam or water bath, and stir constantly, until the mixture stiffens on cooling.

EMPLASTRUM BELLADONNÆ.

Take of Extract of Belladonna, one ounce;
Resin Plaster, two ounces:

Melt the plaster by the heat of a steam or water bath, then add the extract, and mix them intimately.

EMPLASTRUM CALEFACIENS.

Take of Plaster of Spanish Flies, half a pound;
Burgundy Pitch, five pounds and a half:

Melt them together by means of a steam or water bath, and, withdrawing the heat, stir constantly until the mixture stiffens.

EMPLASTRUM CANTHARIDIS.

Take of Spanish Flies, in very fine powder, six ounces;
Yellow Wax;
Resin;
Prepared Lard, of each, four ounces:

To the wax, resin, and lard, previously melted together by a steam or water heat, add the Spanish flies, and stir the mixture constantly until the plaster is cool.

EMPLASTRUM FERRI.

(*Emplastrum Thuris.*)

Take of Peroxide of Iron, in fine powder, one ounce;
Burgundy Pitch, two ounces;
Litharge Plaster, eight ounces:

Add the peroxide of iron to the Burgundy pitch and litharge plaster, previously melted together, and stir the mixture constantly until it stiffens on cooling.

EMPLASTRUM HYDRARGYRI.

Take of Pure Mercury, six ounces;
Resin, two ounces;
Oil of Turpentine, one fluid ounce;
Litharge Plaster, twelve ounces:

Dissolve the resin in the turpentine with the aid of heat, add the mercury, and rub them together until metallic globules cease to be visible, and the mixture assumes a dark gray colour; then add the litharge plaster, previously melted, and stir the mixture constantly until it stiffens on cooling.

EMPLASTRUM LITHARGYRI.

Take of Litharge, in very fine powder, five pounds;
Olive Oil, one gallon;
Water, two pints:

Boil all the ingredients together over a gentle fire, stirring constantly, until the oil and litharge acquire such consistence that they will solidify on cooling. Towards the close of the process a little boiling water should be added to supply the place of that which has disappeared.

EMPLASTRUM OPII.

Take of Opium, in very fine powder, one ounce;
Resin Plaster, nine ounces:

Melt the plaster by means of a steam or water bath, then add the opium by degrees, and mix thoroughly.

EMPLASTRUM RESINÆ.

(*Emplastrum Saponis Compositum vel Adhærens.*)

Take of Resin, in powder, four ounces;
Castile Soap, in powder, two ounces;
Litharge Plaster, two pounds:

To the litharge plaster, previously melted over a gentle fire, add the resin and soap, and mix them intimately.

EMPLASTRUM SAPONIS.

Take of Castile Soap, in powder, four ounces;
Litharge Plaster, two pounds and a half:

To the plaster, previously melted over a gentle fire, add the soap, and heat them together, until they are thoroughly incorporated.

SECTION XXVII.

POWDERS.

PULVIS ANTIMONIALIS.

Take of Tartarized Antimony;
Phosphate of Soda, of each, four ounces;
Chloride of Calcium, two ounces;
Solution of Ammonia, four fluid ounces;
Distilled Water, one gallon and a half, or a sufficient quantity:

Dissolve the tartarized antimony in half a gallon, and the phosphate of soda and chloride of calcium, each, in a quart of the water. Mix the solutions of the tartarized antimony and phosphate of soda when cold, and then pour in the solution of chloride of calcium, having first added to the latter the water of ammonia. Boil now for twenty minutes, and, having collected the precipitate, which will have then formed, on a calico filter, wash it with hot distilled water until the liquid which passes through ceases to give a precipitate with a dilute solution of nitrate of silver. Finally, dry the product by a steam or water heat, and reduce it to a fine powder.

PULVIS AROMATICUS.

Take of Cinnamon;
Ginger, of each, two ounces;
Cardamom Seeds, freed from their capsules;
Nutmeg, of each, one ounce:

Rub each separately to powder, and, having mixed them by trituration, pass through a fine sieve. When prepared, the powder should be kept in well-stopped bottles.

PULVIS CATECHU COMPOSITUS.

Take of Catechu;
Kino, of each, two ounces;
Cinnamon;
Nutmeg, of each, half an ounce:

Reduce each to powder, mix and pass through a fine sieve. When prepared, the powder should be kept in well-stopped bottles.

PULVIS CRETÆ COMPOSITUS.

Take of Prepared Chalk, five ounces;
Cinnamon, two ounces and a half;
Gum Arabic, two ounces;
Nutmeg, half an ounce:

Rub the ingredients separately to powder, then mix, and pass through a fine sieve.

PULVIS CRETÆ OPIATUS.

(*Pulvis Cretæ Compositus cum Opio.*)

Take of Compound Powder of Chalk, four ounces and seven drachms;
Opium, in fine powder, one drachm:

Mix them intimately, and pass through a fine sieve.

PULVERES EFFERVESCENTES CITRATI.

Take of Crystals of Citric Acid, nine drachms;
Bicarbonate of Soda, eleven drachms;

or,

Bicarbonate of Potash, thirteen drachms:

Reduce the acid and alkaline bicarbonates, separately, to a fine powder, and divide each into eighteen parts. The acid and alkaline powders should be kept in papers of different colours.

PULVERES EFFERVESCENTES TARTARIZATI.

Take of Crystals of Tartaric Acid, ten drachms;
Bicarbonate of Soda, eleven drachms;

or,

Bicarbonate of Potash, thirteen drachms:

Reduce the acid and alkaline bicarbonates, separately, to a fine powder, and divide each into eigh-

teen parts. The acid and alkaline powders should be kept in papers of different colours.

PULVIS IPECACUANHÆ COMPOSITUS.

Take of Ipecacuan, in fine powder;
Opium, in fine powder, of each, one drachm;
Sulphate of Potash, one ounce:

Mix thoroughly by trituration, and pass the powder through a fine sieve.

PULVIS JALAPÆ COMPOSITUS.

Take of Jalap, in fine powder, two ounces;
Bitartrate of potash, three ounces and a half;
Ginger, in fine powder, half an ounce:

Mix thoroughly by trituration, and pass the powder through a fine sieve.

PULVIS RHEI COMPOSITUS.

Take of Rhubarb, in fine powder, two ounces;
Magnesia, six ounces;
Ginger, in fine powder, one ounce:

Mix thoroughly by trituration, pass the powder through a fine sieve, and keep it in well-closed bottles.

PULVIS SCAMMONII COMPOSITUS.

Take of Scammony, in fine powder, one ounce;
Compound Powder of Jalap, three ounces:

Mix thoroughly by trituration, and pass the powder through a fine sieve.

SECTION XXVIII.

SPIRITS AND ESSENCES.

ALCOHOL.

Take of Stronger Spirit, one pint;
Pulverized Fresh burned Lime, ten ounces:

Having introduced the lime and spirit into a matrass, connected in the usual manner with a Liebig's condenser, let heat be applied until the lime begins to slake, and, when this process is completed, distil by means of a chloride of zinc bath until the liquid which comes over, together with that obtained during the slaking, measures two ounces. This being rejected, the receiver should be changed, and the dis-

tillation resumed, and continued until a product of nearly sixteen ounces is procured.

The specific gravity of this product is 795.

SPIRITUS FORTIOR.

Take of Rectified Spirit, half a gallon;
Carbonate of Potash from Pearl-ash, eight ounces:

Having dried the carbonate of potash at a low red heat, and rapidly reduced it to powder in a warm mortar, let it be shaken occasionally for four hours in a bottle with the spirit, maintaining the temperature of the mixture at or about 100°. After a subsidence of twenty minutes' duration, the liquid will form two distinct strata, the uppermost of which (measuring about seventy-four ounces) should be separated by decantation or a syphon, and then distilled with the aid of a Liebig's condenser, and chloride of zinc bath, until the product amounts to seventy-two ounces.

The specific gravity of this spirit is 818.

SPIRITUS TENUIOR.

Take of Rectified Spirit, seven pints;
Distilled Water, four pints:

Mix.

The specific gravity of proof spirit is 920.

SPIRITUS AMMONIÆ AROMATICUS.

Take of Rectified Spirit, three pints;
Stronger Solution of Ammonia, six fluid ounces;
Oil of Lemon, half a fluid ounce;
Oil of Nutmeg, two fluid drachms;
Oil of Cinnamon, half a fluid drachm:

Dissolve the oils in the spirit, and add the solution of ammonia; mix with agitation and filter.

The specific gravity of this solution is 852.

SPIRITUS AMMONIÆ FŒTIDUS.

Take of Assafœtida, one ounce and a half;
Rectified Spirit, one pint and a half;
Stronger Solution of Ammonia, three fluid ounces:

Break the assafœtida into small pieces, and macerate it in the spirit for twenty-four hours; then distil off the entire of the spirit, and mix the product with the solution of ammonia.

The specific gravity of this preparation is 849.

SPIRITUS JUNIPERI COMPOSITUS.

Take of Juniper Berries, bruised, eight ounces;
Caraway Seed, bruised;
Fennel Seed, bruised, of each, one ounce;
Proof Spirit, half a gallon;
Water, one pint:

Macerate the berries and the seeds in the spirit, for twenty-four hours; then add the water, and with a slow fire distil off half a gallon.

ESSENTIA ANISI.

Take of Oil of Anise, one fluid ounce;
Rectified Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA CARUI.

Take of Oil of Caraway, one fluid ounce;
Rectified Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA CINNAMOMI.

Take of Oil of Cinnamon, one fluid ounce;
Rectified Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA FŒNICULI.

Take of Oil of Fennel, one fluid ounce;
Alcohol, nine fluid ounces:

Mix with agitation.

ESSENTIA MENTHÆ PIPERITÆ.

Take of Oil of Peppermint, one fluid ounce;
Stronger Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA MENTHÆ PULEGII.

Take of Oil of Pennyroyal, one fluid ounce;
Rectified Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA MENTHÆ VIRIDIS.

Take of Oil of Spearmint, one fluid ounce;
Stronger Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA MYRISTICÆ MOSCHATÆ.

Take of Oil of Nutmeg, one fluid ounce;
Stronger Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA PIMENTÆ.

Take of Oil of Pimenta, one fluid ounce;
Rectified Spirit, nine fluid ounces:

Mix with agitation.

ESSENTIA ROSMARINI.

Take of Oil of Rosemary, one fluid ounce;
Rectified Spirit, nine fluid ounces:

Mix with agitation.

SECTION XXIX.

SULPHATES.

ALUMEN SICCATUM.

Take of Alum, any convenient quantity:

Liquefy it in a porcelain capsule over a gas-lamp or open fire, and continue the heat until vapour ceases to be disengaged. Let the residue be then reduced to a fine powder, and preserved in a well-stopped bottle.

CUPRI AMMONIO-SULPHAS.

(*Cuprum Ammoniatum.*)

Take of Sulphate of Copper, two ounces;
Commercial Sesquicarbonate of Ammonia, three ounces:

Rub them together in a porcelain mortar until effervescence has ceased, then roll up the residue in bibulous paper, and place it on a porous brick. When dry let it be enclosed in a bottle furnished with a well-fitted stopper.

FERRI SULPHAS.

Take of Iron Wire, or turnings of Wrought Iron, four ounces;
Oil of Vitriol of Commerce, four fluid ounces;
Distilled Water, one pint and a half:

Pour the water on the iron placed in a porcelain capsule, add the oil of vitriol, and, when the disengagement of gas has nearly ceased, boil for ten minutes. Filter now through paper, and, having separated the crystals which, after the lapse of twenty-four hours, will have been deposited from the solution, let them be dried upon blotting-paper placed upon a porous brick, and then preserved in a well-stopped bottle.

FERRI SULPHAS GRANULATUM.

Take of Iron Wire, or turnings of Wrought Iron, four ounces;
Oil of Vitriol of Commerce, four fluid ounces;
Distilled Water, one pint and a half;
Rectified Spirit, ten fluid ounces:

Pour the water on the iron placed in a porcelain capsule, add the oil of vitriol, and when the disengagement of gas has nearly ceased, boil for ten minutes. Filter now through paper into a vessel con-

taining eight ounces of the spirit, and stir the mixture as it cools, in order that the salt may be obtained in minute granular crystals. Let these, deprived by decantation and draining of the adhering liquid, be washed on a funnel or small percolator with the remainder of the spirit; and, when rendered quite dry by repeated pressure between folds of filtering paper, and subsequent exposure for twenty-four hours beneath a glass bell over a common dinner-plate half filled with oil of vitriol, let them be preserved in a well-stopped bottle.

FERRI SULPHAS SICCATUM.

Take of Granulated Sulphate of Iron, any convenient quantity:

Expose the salt in a porcelain capsule to an oven heat not exceeding 400°, until aqueous vapours cease to be given off, and, having then reduced it to a fine powder, preserve it in a well-stopped bottle.

HYDRARGYRI SULPHAS.

(*Hydrargyri Persulphas.*)

Take of Quicksilver of Commerce, ten ounces;
Oil of Vitriol of Commerce, six fluid ounces:

Place the quicksilver and oil of vitriol in a porcelain capsule, and apply heat until effervescence

ceases, and nothing remains but a white and dry crystalline salt.

POTASSÆ BISULPHAS.

Take of Sulphate of Potash, in powder, three ounces;
Pure Sulphuric Acid, one fluid ounce:

Place the acid and salt in a small porcelain capsule, and to this apply a heat capable of liquefying its contents, and which should be continued until acid vapours cease to be given off. The bisulphate, which concretes as it cools, should be reduced to a fine powder, and preserved in a well-stopped bottle.

POTASSÆ SULPHAS.

Take of The Residuum of the Process for *Acidum Nitricum Purum*, one pound;
Fresh burned Lime, six ounces;
Water, two quarts;
Carbonate of Potash from Pearl-ash, one drachm;
Dilute Sulphuric Acid, six fluid drachms, or as much as is sufficient:

Slake the lime in four ounces of the water, and having dissolved the residuum of the nitric acid process in the remainder of the water, and raised the solution to the temperature of ebullition, gradually add to it the slaked lime, until reddened litmus paper immersed in it is restored to a blue colour. Filter

the solution through calico, and to it, raised to the boiling point, add the carbonate of potash, as long as there is any precipitate. Filter again, add the dilute sulphuric acid, so as to produce a neutral or very slightly acid solution, and, having evaporated this till a film forms on its surface, set it by for twenty-four hours. The crystals which will then have formed should be dried on blotting-paper, and preserved for use.

ZINCI SULPHAS.

Take of Zinc laminated, or in small fragments, four ounces;
Oil of Vitriol of Commerce, three fluid ounces;
Distilled Water, one quart;
Nitric Acid of Commerce;
Dilute Sulphuric Acid, of each, a fluid drachm;
Prepared Chalk, two drachms:

Place the zinc, oil of vitriol, and a pint of the water, in a porcelain capsule, and, when gas ceases to be developed, boil for ten minutes. Pass then the solution through a calico filter, and, having added to it the nitric acid, evaporate to dryness. Let the dry salt be dissolved in the remainder of the water, and let the solution when cold be shaken several times for six hours in a bottle with the chalk, and then cleared by passing it through a filter. It is now, after having been acidulated with the dilute sulphuric acid, to be evaporated

till a pellicle begins to form on its surface, and then set to crystallize. The crystals thus obtained should be dried on blotting-paper without heat, and then preserved in a bottle. By further concentrating the solution from which the crystals have separated, an additional product will be obtained.

SECTION XXX.

SULPHURETS.

AMMONIÆ HYDRO-SULPHURETUM.

Take of Solution of Ammonia, four fluid ounces;
Sulphuret of Iron, one ounce and a half;
Oil of Vitriol of Commerce, one fluid ounce and a half;
Water, fifteen ounces;
Distilled Water, two ounces:

Place the sulphuret of iron and water in a two-necked bottle, and, adding the oil of vitriol by degrees through a safety funnel, conduct by suitable tubes the sulphuretted hydrogen which is disengaged, first through the distilled water placed in a small interme-

diate phial, and then to the bottom of a bottle containing the ammonia, the neck of the latter, through which the glass tube conveying the gas passes, being loosely plugged with tow. If, when the development of gas has ceased, a drop of the ammoniacal liquid added to a saturated solution of sulphate of magnesia gives no precipitate, the preparation is completed; but should a precipitate occur the hydro-sulphuret still contains free ammonia, and must therefore be again subjected to the action of a stream of sulphuretted hydrogen.

The hydro-sulphuret of ammonia must be kept in a green glass bottle, furnished with an accurately ground stopper.

The specific gravity of this solution is 999.

ANTIMONII SULPHURETUM PRÆCIPITATUM.

(*Sulphur Antimoniatum Fuscum.*)

Take of Prepared Sulphuret of Antimony, five ounces;
Carbonate of Potash from Pearl-ash, first dried by a low red heat, and reduced to powder, four ounces;
Water, one gallon;
Pure Sulphuric Acid, two fluid ounces;
Distilled Water, one quart:

Mix the sulphuret of antimony and carbonate of potash in a mortar, and heat the mixture in a Hessian

crucible, first cautiously until effervescence ceases, and then to low redness, so as to produce liquefaction. Pour out the melted mass on a clean flag, and, when it has concreted and cooled, rub it to a fine powder in a porcelain mortar. Add this, in successive portions, to the gallon of water while boiling in an iron vessel, and, having maintained the ebullition for twenty minutes, transfer the whole to a calico filter, and cause the solution which passes through to drop into the distilled water previously mixed with the sulphuric acid. Let the precipitate which forms be collected on a calico filter, and let warm distilled water be repeatedly poured upon it, until the liquid which passes through ceases to give a precipitate when dropped into a solution of nitrate of barytes. Finally, dry the product on porous bricks placed in a warm atmosphere.

ANTIMONII SULPHURETUM PRÆPARATUM.

Take of Sulphuret of Antimony of Commerce, any convenient quantity:

Let this be reduced to powder, and the finer particles having been separated from the coarser, by the method explained in the formula for *Creta Præparata*, let them be dried, and preserved for use.

FERRI SULPHURETUM.

Take of Rods of Iron, of the size employed in the manufacture of nails, any convenient number:

Having raised them to a strong red or white heat, apply them in succession by their heated extremities to sticks of sulphur, operating so that the melted sulphuret, as it is formed, may drop into a stone cistern filled with water, and be thus protected from oxidation. The water being poured off, let the product be separated from the sulphur with which it is mixed, and, when dried, let it be enclosed in a well-stopped bottle.

HEPAR SULPHURIS.

(*Potassæ Sulphuretum.*)

Take of Sublimed Sulphur, four ounces;
Carbonate of Potash from Pearl-ash, first dried, and then reduced to powder, seven ounces:

Mix these ingredients in a warm mortar, and having introduced them into a Hessian crucible, let this be heated, first gradually, until effervescence has ceased, and finally to low redness, so as to produce perfect fusion, and let its liquid contents be then poured into an iron cup, over which a second vessel should be immediately inverted, so as to exclude the air as completely as possible, while solidification is

taking place. The solid product thus obtained should, when cold, be broken into fragments, and immediately enclosed in a green-glass bottle, furnished with an air-tight stopper.

SECTION XXXI.

SYRUPS.

SYRUPUS SIMPLEX.

Take of Refined Sugar, in powder, five pounds;
Distilled Water, two pints:

Dissolve the sugar in the water, with the aid of a steam or water heat.

The specific gravity of this syrup is 1330.

SYRUPUS ACIDI CITRICI.

Take of Citric Acid, in powder;
Distilled Water, of each, two and a half ounces;
Tincture of Lemon Peel, five fluid drachms;
Simple Syrup, three pints:

Dissolve the acid in the water with the aid of heat; then add the solution and tincture of lemon peel to the syrup, and mix with agitation.

SYRUPUS AURANTII.

Take of Bitter Orange Peel, dried, two ounces and a half;
Boiling Distilled Water, one pint;
Refined Sugar, in powder, as much as is sufficient:

Infuse the orange peel in the water, in a covered vessel, for twelve hours, and strain without expression; then, add to the liquor twice its weight of sugar, and dissolve with the aid of a steam or water heat.

SYRUPUS CROCI.

Take of Saffron, chopped fine, half an ounce;
Boiling Distilled Water, one pint;
Refined Sugar, in powder, as much as is sufficient:

Infuse the saffron in the water, in a covered vessel, for twelve hours, then boil for five minutes, and strain through calico with expression; let the decoction stand until the sediment subsides, and having then decanted the clear liquor, add to it twice its weight of sugar, and dissolve with the aid of a steam or water heat.

SYRUPUS FERRI IODIDI.

Take of Pure Iodine, five drachms;
Iron Turnings, separated by a magnet, three drachms;
Distilled Water, two ounces;
Simple Syrup, six fluid ounces:

Introduce the iodine, iron, and water, into a glass flask, and apply a moderate heat until the solution loses its red colour. Filter the solution while hot into a bottle containing the syrup, mix with agitation, and add distilled water, to make up eight fluid ounces.

One fluid drachm contains about five grains of iodide of iron.

SYRUPUS HEMIDESMI.

Take of Indian Sarsaparilla, bruised, four ounces;
Boiling Distilled Water, one pint;
Refined Sugar, in powder, as much as is sufficient:

Infuse the sarsaparilla in the water for four hours, in a covered vessel, and strain; set it by until the sediment subsides, then decant the clear liquor, and, having added to it twice its weight of sugar, dissolve with the aid of a steam or water heat.

SYRUPUS MORPHIÆ ACETATIS.

Take of Solution of Acetate of Morphia, one fluid ounce;
Simple Syrup, fifteen fluid ounces:

Mix with agitation.

SYRUPUS MORPHIÆ MURIATIS.

Take of Solution of Muriate of Morphia, one fluid ounce;
Simple Syrup, seventeen fluid ounces:

Mix with agitation.

SYRUPUS ROSÆ GALLICÆ.

Take of Petals of the Gallic Rose, dried, two ounces;
Boiling Distilled Water, one pint;
Refined Sugar, in powder, as much as is sufficient:

Boil the petals in the water, in a glass or porcelain vessel, until their colour is completely extracted; strain with expression, and let the decoction stand until the sediment subsides; then, having decanted the supernatant liquor, add to it twice its weight of sugar, and dissolve with the aid of a steam or water heat.

SYRUPUS SCILLÆ.

Take of Vinegar of Squill, eight fluid ounces;
Refined Sugar, in powder, one pound:

Dissolve the sugar in the vinegar of squill, with the aid of a steam or water heat.

SYRUPUS TOLUTANUS.

Take of Balsam of Tolu, one ounce;
Distilled Water, one pint;
Refined Sugar, in powder, as much as is sufficient:

Boil the balsam in the water for half an hour, in a lightly covered vessel, occasionally stirring, and strain the liquor when cold; then, having added to it twice its weight of sugar, dissolve with the aid of a steam or water heat.

SYRUPUS ZINGIBERIS.

Take of Tincture of Ginger, one fluid ounce;
Simple Syrup, seven fluid ounces:

Mix with agitation.

SECTION XXXII.

TARTRATES.

ANTIMONIUM TARTARIZATUM.

(*Antimonii et Potassæ Tartras, sive Tartarum Emeticum.*)

Take of Oxide of Antimony, five ounces;
White Bitartrate of Potash, six ounces;
Distilled Water, one quart:

Rub the bitartrate to a fine powder, and, having carefully mixed with it the oxide of antimony, add a little water, so as to convert the mixture into a thick paste, which should be set by for twenty-four hours. Pour on this the remainder of the water, previously raised to the temperature of 212°, and, having boiled for fifteen minutes, with repeated stirring, in a glass or porcelain vessel, filter through calico, returning the slightly turbid liquid which first passes through, so as to obtain a clear solution. After twelve hours let the solution be decanted from the crystals which will have formed, and boiled down to one-third, when, upon cooling, an additional product will be obtained. The salt, after being dried upon blotting

paper without the application of heat, should be preserved in a bottle.

ANTIMONII TARTARIZATI LIQUOR.

(*Liquor Tartari Emetici.*)

Take of Tartarized Antimony, one drachm;
Distilled Water, one pint;
Rectified Spirit, seven fluid ounces:

Having dissolved the tartarized antimony in the water, and cleared the solution by passing it through a paper filter, add the spirit, and preserve the product in a well-stopped bottle.

FERRUM TARTARIZATUM.

(*Ferri Tartarum.*)

Take of Sulphate of Iron, eight ounces;
White Bitartrate of Potash, five ounces;
Distilled Water, one pint and a half:

From the sulphate of iron prepare hydrated peroxide of iron, by the process given in page 108, and having, immediately after it is washed, placed it with the bitartrate of potash and water in a porcelain capsule, apply heat to the mixture (taking care, however, that the temperature does not rise beyond 150°) and stir it occasionally for six hours. Let the solution, after it has cooled down to the temperature

of the atmosphere, be decanted off any undissolved oxide of iron, and, having transferred it in small quantities to delf dinner-plates, let it be evaporated to dryness at a heat not exceeding 150°. Lastly, chip off the film of dry salt which adheres to the plates, and preserve it in well-stopped bottles.

POTASSÆ TARTRAS.

Take of Carbonate of Potash from Pearl-ash, eight ounces;
White Bitartrate of Potash, in fine powder, one pound, or a sufficient quantity;
Distilled Water, half a gallon:

Dissolve the carbonate of potash in the water, and to the solution, while boiling hot, gradually add the bitartrate, until the liquid, after the ebullition has been continued for a couple of minutes, ceases to change the colour of blue or reddened litmus. Filter through calico, and having evaporated the clear liquor until a pellicle forms on its surface, set it by to crystallize. After twelve hours pour off the liquid, and, having dried the crystals on bibulous paper, preserve them in a well-stopped bottle.

SODÆ ET POTASSÆ TARTRAS

Take of Crystallized Carbonate of Soda of Commerce, nine ounces;
White Bitartrate of Potash, in fine powder, twelve ounces, or a sufficient quantity;
Distilled Water, half a gallon:

Dissolve the carbonate of soda in the water, and to the solution, while boiling hot, gradually add the bitartrate, until a neutral solution is obtained. Let this be filtered, evaporated till a pellicle forms on its surface, and then set to crystallize. After twelve hours, the solution should be decanted off the crystals, and these, when dried on blotting paper, should be preserved in a bottle. By further concentrating the decanted solution, and cooling it, an additional crop of crystals may be obtained.

SECTION XXXIII.

TINCTURES.

TINCTURA RADICIS ACONITI.

Take of Aconite Root, dried, and cut small, ten ounces;
Rectified Spirit, one pint:

Macerate for fourteen days, strain, express, and filter.

TINCTURA ASSAFŒTIDÆ.

Take of Assafœtida, in small fragments, five ounces;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA AURANTII.

Take of Bitter Orange Peel, dried, four ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA FOLIORUM BELLADONNÆ.

Take of Belladonna Leaves, dried, and in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA BUCHU.

Take of Buchu Leaves, bruised, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CALUMBÆ.

Take of Calumba Root, in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CAMPHORÆ.

(*Spiritus Camphoratus.*)

Take of Camphor, in small fragments, one ounce;
Rectified Spirit, eight fluid ounces:

Dissolve the camphor in the spirit.

TINCTURA CANNABIS INDICÆ.

Take of Purified Extract of Indian Hemp, half an ounce;
Rectified Spirit, half a pint:

Dissolve the extract in the spirit.

TINCTURA CANTHARIDIS.

Take of Spanish Flies, in coarse powder, half an ounce;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CAPSICI.

Take of Cayenne Pods, bruised, one ounce and a half;
Proof Spirit, one pint:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CARDAMOMI COMPOSITA.

Take of Cardamom seeds, bruised;
Caraway seeds, bruised, of each, half an ounce;
Cinnamon, bruised, one ounce;
Cochineal, in powder, two drachms;
Proof Spirit, three pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CASCARILLÆ.

Take of Cascarilla Bark, in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CATECHU.

Take of Catechu, in coarse powder, four ounces;
Cinnamon, bruised, two ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CHIRETTÆ.

Take of Chiretta, bruised, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CINCHONÆ.

Take of Peruvian Bark (Crown or Pale), in coarse powder, eight ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CINCHONÆ COMPOSITA.

Take of Peruvian Bark (Crown or Pale), in coarse powder, four ounces;
Bitter Orange Peel, dried, two ounces;
Virginia Snake-Root, bruised, six drachms;
Saffron, chopped fine, two drachms;
Cochineal, in powder, one drachm;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CINNAMOMI COMPOSITA.

Take of Cinnamon, bruised, two ounces;
Cardamom Seeds, bruised, one ounce;
Ginger, bruised, half an ounce;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA COCCI CACTI.

Take of Cochineal, in fine powder, two ounces;
Proof Spirit, one pint:

Macerate for fourteen days, strain, express, and filter.

TINCTURA SEMINUM COLCHICI.

Take of Colchicum Seeds, bruised, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CROCI.

Take of Saffron, chopped fine, two ounces;
Proof Spirit, one pint:

Macerate for fourteen days, strain, express, and filter.

TINCTURA CUBEBÆ.

Take of Cubebs, bruised, five ounces;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA DIGITALIS.

Take of Foxglove Leaves, dried, and in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA ERGOTÆ.

Take of Ergot of Rye, in coarse powder, eight ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA FERRI ACETATIS.

Take of Sulphate of Iron, eight ounces;
Distilled Water, half a pint;
Pure Sulphuric Acid, six fluid drachms;
Pure Nitric Acid, half a fluid ounce;
Acetate of Potash, eight ounces;
Rectified Spirit, half a gallon:

To nine ounces of the water add the sulphuric acid, and in the mixture, with the aid of heat, dissolve the sulphate of iron. Add next the nitric acid, first diluted with the remaining ounce of water, and evaporate the resulting solution to the consistence of a thick syrup. Dissolve this in one quart, and the acetate of potash in the remainder of the spirit, and, having mixed the solutions, and shaken the mixture repeatedly in a large bottle, let the whole be thrown upon a calico filter. When any further liquid ceases to trickle through, subject the filter, with its contents, to expression, and, having cleared the turbid tincture thus procured by filtration through paper, let it be added to that already obtained.

The specific gravity of this tincture is 891.

TINCTURA FERRI SESQUICHLORIDI.

(*Muriatis Ferri Liquor.*)

Take of Iron Wire, eight ounces;
Pure Muriatic Acid, one quart;
Pure Nitric Acid, eighteen fluid drachms;
Distilled Water, one pint;
Rectified Spirit, one pint and a half:

Dilute the muriatic acid with the water, and, having poured the mixture on the iron, apply a gentle heat until the metal is dissolved. Next add the nitric acid in successive portions, and then evaporate at a gentle heat until the solution is reduced to one pint. Finally mix this in a bottle with the spirit, and, after the mixture has stood for twelve hours, draw off the clear tincture.

The specific gravity of this tincture is 1237.

TINCTURA GALLÆ.

Take of Galls, in fine powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA GENTIANÆ COMPOSITA.

Take of Gentian Root, bruised, three ounces;
Bitter Orange Peel, dried, one ounce and a half;
Cardamom Seeds, bruised, half an ounce;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA GUAIACI.

Take of Guaiac Resin, in fine powder, eight ounces;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA HYOSCYAMI.

Take of Henbane Leaves, dried, and in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA IODINII COMPOSITA.

Take of Pure Iodine, half an ounce;
Iodide of Potassium, one ounce;
Rectified Spirit, one pint:

Dissolve the iodine and iodide of potassium in the spirit.

TINCTURA JALAPÆ.

Take of Jalap Root, in coarse powder, five ounces;
Proof Spirit, one pint and a half:

Macerate for fourteen days, strain, express, and filter.

TINCTURA KRAMERIÆ.

Take of Rhatany Root, in coarse powder, eight ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA LAVANDULÆ COMPOSITA.

(*Spiritus Lavandulæ Compositus.*)

Take of Oil of Lavender, three fluid drachms;
Oil of Rosemary, one fluid drachm;
Cinnamon, bruised, one ounce;
Nutmeg, bruised, half an ounce;
Cloves, bruised;
Cochineal, in powder, of each, two drachms;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA LIMONIS.

Take of Fresh Lemon Peel, cut thin, five ounces;
Proof Spirit, one pint:

Macerate for fourteen days, strain, express, and filter.

TINCTURA LOBELIÆ.

Take of Lobelia, dried, and in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA LUPULINÆ.

Take of Lupulin, five ounces;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA MATICO.

Take of Matico Leaves, in coarse powder, eight ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA MYRRHÆ.

Take of Myrrh, in coarse powder, four ounces;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA OPII.

Take of Opium, in coarse powder, three ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA OPII CAMPHORATA.

(*Elixir Paregoricum.*)

Take of Opium, in coarse powder;
Benzoic Acid, of each, one drachm and a half;
Camphor, one drachm;
Oil of Anise, one fluid drachm;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA RHEI COMPOSITA.

Take of Rhubarb Root, bruised, three ounces;
Cardamom Seeds, bruised, one ounce;
Liquorice Root, bruised, half an ounce;
Saffron, chopped fine, two drachms;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA SCILLÆ.

Take of Squill, dried, and in coarse powder, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA SENNÆ COMPOSITÆ.

Take of Senna, four ounces;
Caraway Seeds, bruised;
Cardamom Seeds, bruised, of each, half an ounce;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA STRAMONII.

Take of Stramonium Seeds, bruised, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA TOLUTANA.

(*Tinctura Balsami Tolutani.*)

Take of Balsam of Tolu, two ounces;
Rectified Spirit, one pint:

Dissolve the balsam in the spirit with the aid of a gentle heat, let it stand until the sediment subsides, then decant the clear tincture.

TINCTURA VALERIANÆ.

Take of Valerian Root, bruised, five ounces;
Proof Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

TINCTURA ZINGIBERIS.

Take of Ginger Root, in coarse powder, eight ounces;
Rectified Spirit, two pints:

Macerate for fourteen days, strain, express, and filter.

SECTION XXXIV.

VALERIANATES.

FERRI VALERIANAS.

Take of Valerianate of Soda, five ounces and three drachms;
Sulphate of Iron, four ounces;
Distilled Water, one pint:

Let the sulphate of iron be converted into a persulphate, as directed in the formula for *Ferri Peroxydum Hydratum*, and, by the addition of distilled water, let the solution of the persulphate be augmented to the bulk of eight ounces. Dissolve the valerianate of soda in ten ounces of the water, then mix the two solutions cold, and, having placed the precipitate which forms upon a filter, and washed it with the remainder of the water, let it be dried by placing it for some days rolled up in bibulous paper on a porous brick. This preparation should be kept in a well-stopped bottle.

QUINÆ VALERIANAS.

Take of Muriate of Quina, seven drachms;
Valerianate of Soda, one hundred and twenty-four grains;
Distilled Water, sixteen ounces:

Dissolve the valerianate of soda in two ounces, and the muriate of quina in the remainder of the water, and, the temperature of each solution being raised to 120°, but not higher, let them be mixed, and let the mixture be set by for twenty-four hours, when the muriate of quina will have become a mass of silky acicular crystals. Let these be pressed between folds of blotting-paper, and dried without the application of artificial heat.

Instead of weighing out seven drachms of muriate of quina, and dissolving it in water, as is above prescribed, we may employ the solution of the muriate prepared from an ounce of the sulphate, as directed in the formula for *Quinæ Murias*, such solution having been first evaporated to fourteen ounces. It may be observed here, that should it become necessary to evaporate a liquid containing valerianate of quina, care must be taken that its temperature does not rise higher than 120°.

SODÆ VALERIANAS.

Take of Bichromate of Potash, reduced to powder, nine ounces;
Fusel Oil, four fluid ounces;
Oil of Vitriol of Commerce, six fluid ounces and a half;
Water, half a gallon;
Solution of Caustic Soda, one pint, or as much as is sufficient:

Dilute the oil of vitriol with ten ounces, and dissolve with the aid of heat the bichromate of potash, in the remainder of the water. When both solutions have cooled down to nearly the temperature of the atmosphere, place them in a matrass, and, having added the fusel oil, mix well by repeated shaking, until the temperature of the mixture, which first rises to about 150°, has fallen to 80° or 90°. The matrass having been now connected with a condenser, heat is to be applied, so as to distil over about half a gallon of liquid. Let this, when exactly saturated with the solution of caustic soda, be separated from a little oil that floats on its surface, and evaporated down until, the escape of aqueous vapour having entirely ceased, the residual salt is partially liquefied. The heat should now be withdrawn, and when the valerianate of soda has concreted, it is, while still warm, to be divided into fragments, and preserved in a well-stopped bottle.

ZINCI VALERIANAS.

Take of Valerianate of Soda, two ounces and a half;
Sulphate of Zinc, two ounces and seven drachms;
Distilled Water, one quart:

Dissolve the valerianate of soda in one half, and the sulphate of zinc in the remaining half of the water, and, having raised both solutions to 200°, mix them, and skim off the crystals which are produced. Let the solution be now evaporated at a temperature not exceeding 200°, until it is reduced to the bulk of four ounces, removing, as before, the crystals from the surface, in proportion as they form, and placing them with those already obtained. The salt thus procured is to be steeped for an hour in as much cold distilled water as is just sufficient to cover it, and then transferred to a paper filter, on which it is to be first drained, and then dried at a heat not exceeding 100°.

SECTION XXXV.

VINEGARS.

ACETUM CANTHARIDIS.

Take of Spanish Flies, in fine powder, four ounces;
Strong Acetic Acid, four fluid ounces;
Acetic Acid of Commerce (sp. gr. 1044), sixteen fluid ounces:

Mix the acids, and, having added the flies, macerate in a close vessel for fourteen days; then strain through flannel with expression, and filter so as to obtain a clear liquor.

ACETUM COLCHICI.

Take of Colchicum Bulbs, dried and bruised, one ounce;
Acetic Acid of Commerce (sp. gr. 1044), four fluid ounces;
Distilled Water, twelve ounces:

In the acid, diluted with the water, macerate the colchicum, in a close vessel, for seven days; then strain with expression, and filter.

ACETUM OPII.

Take of Opium, in coarse powder, one ounce and a half;
Dilute Acetic Acid, one pint:

Macerate for seven days in a close vessel, with occasional agitation; then strain with expression, and filter.

ACETUM SCILLÆ.

Take of Squill, dried and bruised, two ounces;
Acetic Acid of Commerce (sp. gr. 1044), four fluid ounces;
Distilled Water, twelve ounces:

In the acid, diluted with the water, macerate the squill in a close vessel, for seven days; then strain with expression, and filter.

ACIDUM ACETICUM CAMPHORATUM.

Take of Camphor, one ounce;
Rectified Spirit, one fluid drachm;
Strong Acetic Acid, ten fluid ounces:

Reduce the camphor to powder, by trituration with the spirit; then add the acid, and dissolve.

SECTION XXXVI.

WATERS.

AQUA DESTILLATA.

Take of Spring, or River Water, any convenient quantity:

Having introduced it into a copper still connected with a block-tin worm, or a Liebig's condenser, draw over about one-fortieth by distillation; this being rejected, continue the process until only about one-fifth of the original volume of the water remains in the still. Let the distilled water be preserved in well-stopped bottles.

AQUA ANISI.

Take of Essence of Anise, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA CARUI.

Take of Essence of Caraway, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA CINNAMOMI.

Take of Essence of Cinnamon, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA FŒNICULI.

Take of Essence of Fennel, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA LAURO CERASI.

Take of Fresh Leaves of the Common Laurel, one pound;
Water, two pints and a half:

Upon the leaves, chopped, and crushed in a mortar, macerate the water for twenty-four hours, and then draw over a pint of liquid by distillation, using a Liebig's condenser, and chloride of zinc bath. Filter the product through paper, and preserve it in a well-stopped bottle.

AQUA MENTHÆ PIPERITÆ.

Take of Essence of Peppermint, one fluid ounce;
Distilled Water half a gallon:

Mix with agitation, and filter through paper.

AQUA MENTHÆ PULEGII.

Take of Essence of Pennyroyal, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA MENTHÆ VIRIDIS.

Take of Essence of Spearmint, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA PIMENTÆ.

Take of Essence of Pimenta, one fluid ounce;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

AQUA ROSÆ.

Take of Essential Oil of Roses, twenty minims;
Distilled Water, half a gallon:

Mix with agitation, and filter through paper.

SECTION XXXVII.

WINES.

VINUM IPECACUANHÆ.

Take of Ipecacuan, in coarse powder, two ounces and a half;
Sherry Wine, two pints:

Macerate for fourteen days, with occasional agitation; then strain with expression, and filter.

VINUM OPII.

Take of Opium, in coarse powder, three ounces;
Sherry Wine, two pints:

Macerate for fourteen days, with occasional agitation; then strain with expression, and filter.

VINUM RHEI.

Take of Rhubarb, in coarse powder, three ounces;
Canella, in coarse powder, two drachms;
Sherry Wine, two pints:

Macerate for fourteen days, with occasional agitation; then strain with expression, and filter.

SUPPLEMENT.

ALCOHOL AMYLICUM—FUSEL OIL.

Take of The light Liquid which may be obtained at any large distillery by continuing the distillation for some time after the pure spirit has been all drawn off, any convenient quantity:

Introduce it into a small still or retort connected with a condenser, and apply heat, so as to cause distillation. As soon as the oil begins to come over unmixed with water, the receiver should be changed, and the distillation being resumed and carried nearly to dryness, the desired product will be obtained. The liquid drawn over during the first part of the distillation will consist of an aqueous fluid, surmounted by a stratum of the fusel oil. This latter, though impregnated with a minute quantity of water, should be separated and preserved, as being sufficiently pure for use.

CARBO ANIMALIS PURIFICATUS.

Take of Ivory Black, five pounds;
Muriatic Acid of Commerce, three pints;
Water, three gallons and three pints;
Distilled Water, as much as is necessary:

To the acid, diluted with three pints of water, gradually add the ivory black, and digest, with repeated stirring, at a gentle heat for twenty-four hours. Pour on now a gallon of water, and when, after the mixture has been well agitated, the insoluble matters have subsided, remove the clear solution by decantation, or the syphon. Let this be done a second and a third time. Place now the black sediment on a calico filter, and wash it with distilled water, until the washings cease to give a precipitate with nitrate of silver. Finally, let the product be dried in a stove or oven, a gentle heat being at first applied, which must be finally raised to between 300° and 400°.

CHLOROFORMUM.

Take of Chlorinated Lime, ten pounds;
Fresh-burned Lime, five pounds;
Water, four gallons;
Rectified Spirit, twenty-five ounces;
Peroxide of Manganese, in fine powder, two drachms:

Slake the lime with a quart of the water, first raised to the boiling temperature, and, having placed the slaked lime and the chlorinated lime in a sheet iron or copper still, pour on the residue of the water first mixed with the spirit, and raised to the temperature of 100°. Connect now the still with a condenser, and apply heat, which, however, must be withdrawn the moment the distillation commences. The distilled product, the bulk of which need not exceed a quart, will occur in two distinct strata, the lower of which is the crude chloroform. Let this be agitated twice in succession, with an equal volume of distilled water, and then in a separate bottle with half its volume of pure sulphuric acid. Lastly let it be shaken in a matrass with the peroxide of manganese, and rectified from off this at a very gentle heat.

The specific gravity of chloroform is 1496.

The lighter liquid which distils over with the chloroform, and the water used in washing the latter, should be preserved with the view of their

being introduced, with a new charge, into the still in a subsequent process.

ELATERIUM

(*Extractum Elaterii.*)

Take of The Fruit of Momordica Elaterium, before it is quite ripe, any convenient quantity:

Cut the fruit, and express the juice gently through a fine sieve; allow the liquid to rest until it becomes pretty clear; pour off the supernatant liquor, which may be thrown away; and dry the feculence with a gentle heat.

SODÆ CAUSTICÆ LIQUOR.

Take of Crystallized Carbonate of Soda of Commerce, two pounds;
Fresh-burned Lime, ten ounces;
Distilled Water, one gallon and seven ounces:

Slake the lime with seven ounces of the water. Dissolve the carbonate of soda in the remainder of the water, and having raised the solution to the boiling point in a clean iron vessel, gradually mix with it the slaked lime, and continue the ebullition for ten minutes with constant stirring. Remove the vessel now from the fire, and when, by the subsi-

dence of the insoluble matters, the supernatant liquor has become perfectly clear, transfer it by means of a syphon to a green-glass bottle, furnished with an air-tight stopper.

The specific gravity of this solution is 1056.

INDEX.

THE Names of the Preparations in the Pharmacopœia of 1826, which have been retained as synonymes of the names adopted in this Edition, are printed in *Italics.*

THE END.

New Edition, improved and enlarged,

ELEMENTS OF CHEMISTRY,

PRACTICAL AND THEORETICAL,

Including the most recent Discoveries and Applications of the Science to Medicine and Pharmacy, to Agriculture, and to Manufactures.

BY SIR ROBERT KANE, M. D., M. R. I. A.,

Director of the Museum of Irish Industry; President of the Queen's College, Cork; &c. &c.

Second Edition, with 230 Illustrations, price 28*s*.

EDINBURGH MEDICAL JOURNAL.

"We possess at present no work which can come into competition with this, as an ample, judicious, and independent summary of the progress of Chemistry during the last ten years. A broad, bold, outline sketch is given of all the great laws, doctrines, and problems of the science; as such we recommend it to those who are still willing, whatever amount of progress they may have made in it, to be styled students."

BRITISH AND FOREIGN MEDICAL REVIEW.

"The general plan and character of this Treatise are peculiarly suited, in our opinion, to the wants of the chemical student, for, while it is constructed so as to avoid most of the questionable and unproven hypotheses of modern chemists, it omits none of their important discoveries; it dwells much more upon general principles and doctrines than upon the wearisome details with which most treatises are crowded; and it is written, moreover, in such an easy and familiar style as to be adapted to the capacity of every reader of ordinary intelligence."

DUBLIN MEDICAL QUARTERLY.

"The entire work, now perfect in every department, constitutes a volume equally useful, we might say necessary, to the student of medicine and the physician, to the simple husbandman, the skilled agriculturist, to the man of letters, and the scientific philosopher. We know of no work on the subject which combines so happily compendiousness and completeness."

PHARMACEUTICAL JOURNAL.

"Much care has evidently been bestowed upon those parts of the work which required alteration, and much new matter has been introduced. We have no doubt that this edition will fully sustain the character which the work had previously acquired."

MEDICAL GAZETTE.

"The Author's style is clear, and his descriptions are concise and intelligible. For this reason his work is well adapted to the use of students. In the Scale of Equivalents the numbers for each substance are given on the assumption that either oxygen or hydrogen is taken as a unity. The symbols are those which are in common use, and English weights and English thermometers are made the basis of his descriptions. We can safely recommend this Edition to our readers, as containing an accurate account of the most recent improvements and discoveries in Chemistry."

DUBLIN: HODGES AND SMITH, GRAFTON-STREET.